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I. G. JONES, M. D.,

LATE PROFESSOR OF THE THEORY AND PRACTICE OF MEDICINE, IN THE ECLECTIC MEDICAL INSTITUTE
OF CINCINNATI, ETC., ETC.

TO WHICH ARE APPENDED THE POSTHUMOUS WRITINGS OF

T. V. MORROW, M. D.,

ALSO LATE PROFESSOR OF THE THEORY AND PRACTICE OF MEDICINE IN THE SAME INSTITUTE, ETC.

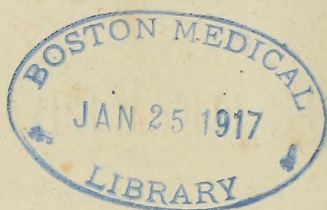
VOLUME I.

CINCINNATI:

MOORE, ANDERSON, WILSTACH & KEYS.

28 WEST FOURTH STREET.

1854.



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BY DR. I. G. JONES,

In the Clerk's office of the District Court of the United States for the District of Ohio.

TO
ALL MEMBERS
OF THE
MEDICAL PROFESSION,

WHO,
CHASTENED BY EXPERIENCE AND OBSERVATION, AND RISING ABOVE
THE TRAMMELS OF PARTY FEELING,
ARE READY TO RECOGNIZE VALUABLE CONTRIBUTIONS TO MEDICAL SCIENCE,
AND TO ADOPT MEASURES
PROVED SUCCESSFUL IN RELIEVING HUMAN SUFFERING:

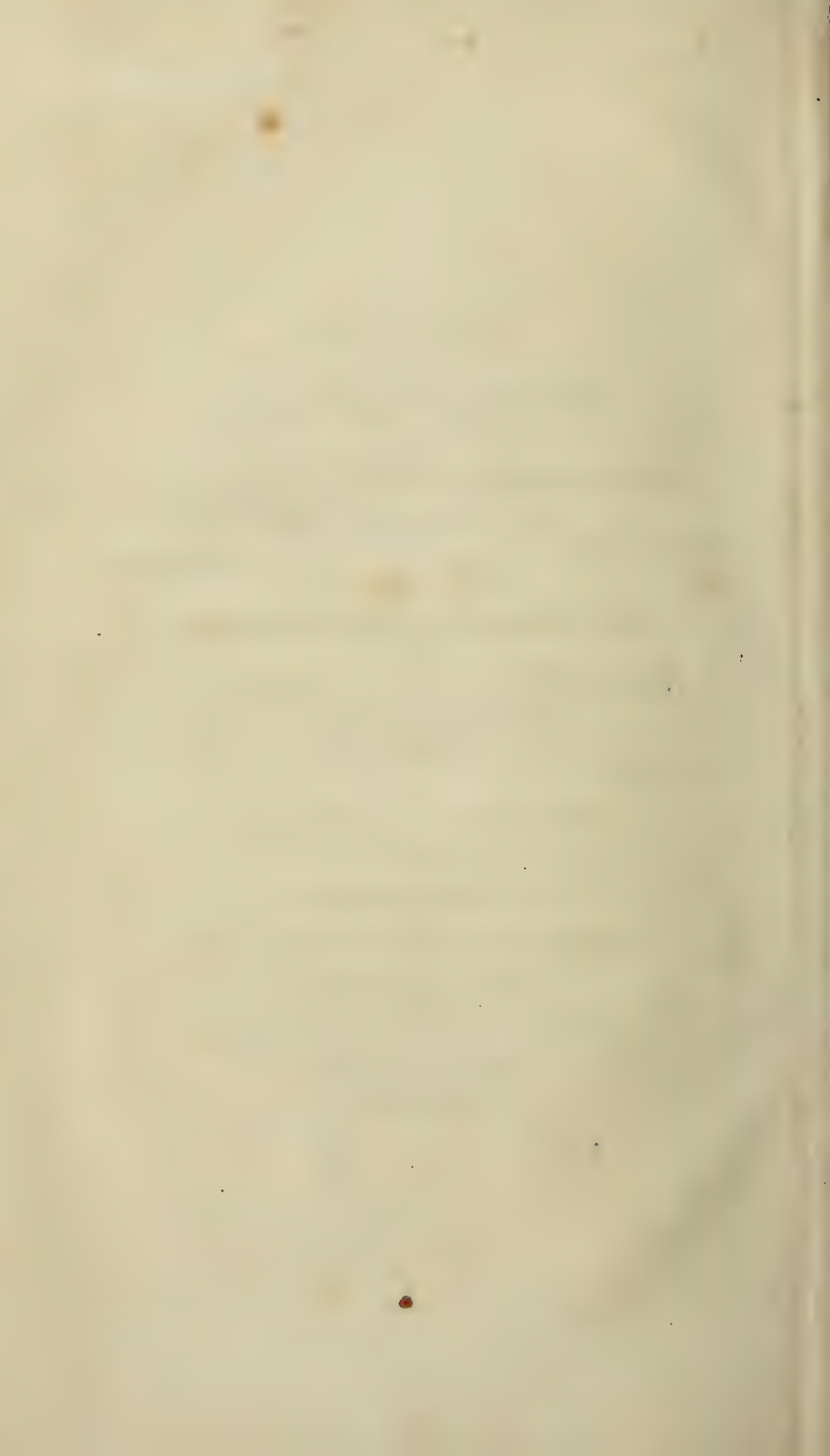
TO ALL
WITH WHOM THE LOVE OF TRUTH AND ITS DISSEMINATION ARE
PARAMOUNT TO PROFESSIONAL PRIDE OR
INDIVIDUAL OPINION:

TO ALL
WHO ARE FREE TO CHOOSE AND FREE TO ACT:
IN FINE,

To all Genuine Eclectics,
WHO HAVE CHOSEN MEDICINE FOR THEIR FIELD OF LABOR,

THESE LECTURES
ARE MOST RESPECTFULLY INSCRIBED, BY
THEIR FRIEND AND CO-LABORER,

THE AUTHOR.



P R E F A C E.

THE object of the present publication is to supply, in a measure, the increasing demand for a TEXT BOOK for students, and a work of reference for practitioners of the ECLECTIC School of Medicine. A work embodying at once the general principles, and the modern improvements in practice, advocated by that school, adapted equally to the wants of Western physicians, students, and professors, and calculated to correct and remove erroneous impressions too generally prevalent in regard to the Eclectic system, is, and long has been, greatly needed.

It was to answer these several demands, and promulgate more liberal medical sentiments, that the late lamented Prof. MORROW commenced preparing for the press a work on the Theory and Practice of Medicine. He had made some considerable progress in the discussion of a number of the diseases usually treated of in such a work; but, aside from the incidental mention of principles growing out of the consideration of the treatment of diseases, and before arriving at the formal discussion of the important and distinctive general principles connected with medical improvement, which he had for many years been teaching with eminent ability, he was cut off by the hand of death.

Remote from the field of labor in which Prof. Morrow was engaged, the present writer had no opportunity to consult or arrange with him, or even to ascertain the extent of the matter he had prepared before

his decease. But having been his associate in the Eclectic school when first established in Worthington, and his partner in the practice of our profession for many years, it was, perhaps, not unreasonably supposed that I fully understood and appreciated the views and theories of our late friend; and hence, doubtless, it was, that I was immediately called upon, both by *his* friends and the friends of the institution, of which he was the moving spirit up to the time of his death, to take his place in the school, and complete the work which he had begun. However reluctant I might have been to suddenly exchange my own active business, at no small personal sacrifice, for the more quiet, perhaps, but more exhausting labors of a professorship, yet I did not feel at liberty to resist the urgent personal solicitations of too partial friends, nor to decline the appointment, by the trustees of the Eclectic Medical Institute of Cincinnati, to the chair of "Theory and Practice of Medicine."

With health not the most firm, and accustomed to active out-door exercise, I feared the result of the confinement necessary to the *complete* preparation of a course of lectures, and the continuation of Dr. Morrow's work. I therefore resorted to the expedient of procuring a phonetic reporter, to take down and transcribe my lectures, and thereby accomplish, to a great extent, the two-fold purpose of completing the work referred to, and imparting a more thorough course of instruction than I should otherwise be likely to do.

On examining the matter left by Dr. Morrow, it was found much less extensive and more unfinished than was expected; and what he had written was mainly confined, as before stated, to the consideration of the symptoms and treatment of some of the most common diseases, without any separate discussion of the pathological phenomena, or general principles, always important, but indispensably necessary in a work proposing great changes in the Theory and Practice of Medicine. I also found, on reflection, that it was not convenient, in delivering a

course of lectures, to continue the plan adopted by Dr. Morrow, nor could I appropriate and embody his matter, without considerable modification. I therefore prepared my lectures independently of his writings, and have concluded to present his matter in this volume, separately, and exactly as it was left by his hand, not feeling authorized either to withhold its publication, or to introduce any other changes than were required by evident verbal omissions or mistakes. This much was, perhaps, due to the memory of the late Professor, and will be gratifying to his numerous friends, who had been apprised of his intention to prepare a work for the press. And this will account for the appearance of the present volume, which, I trust, will meet the expectations of the profession, and supply, at the same time, the present necessities of our schools.

It will be seen that there is some difference between the course of treatment of malarial diseases recommended by Dr. Morrow and that advocated in these lectures. The views which I have set forth of malarial influences, and the treatment of all diseases arising therefrom, had been gradually ripening into settled convictions for the last eighteen years, and are the result of personal observation and experience. They had not till recently been communicated to Dr. Morrow or the profession, and not till after he had mainly written what appears in this book. But I have reason to believe, from several interviews with him, that, after fully testing the theories and measures which I suggested to him, he would, had he lived to complete his work, have modified his previously prepared manuscript so as to correspond and harmonize with the views set forth in these lectures. In every other respect, it will be observed that our views of treatment are essentially the same.

On reviewing the manuscript furnished by my reporter, many defects and mistakes were found, partly referable to the difficulty of reporting extemporaneous lectures, but mainly owing to the imperfections of the phonetic system, or the want of experience in writing on

medical subjects on the part of the reporter. They have, however, been corrected, so far as the circumstances connected with an extensive daily practice would permit. And although I make no claim to exemption from errors and mistakes, I nevertheless believe this work will be found, on the whole, as perfect in these respects as most other similar productions. In a future edition, should any be demanded, no pains will be spared to correct any errors of omission or commission which may be discovered on a more careful review.

My first design contemplated but one volume; but it was found that the proper discussion of all the subjects legitimately embraced in the terms "Theory and Practice," would swell a single volume, however condensed, to a size inconvenient both to students and practitioners. I have, therefore, hastened to issue the present volume in time to furnish a text-book to be used during the ensuing course of lectures in our institutions, and hope to have the second volume ready by the time the subjects treated upon in this volume shall have been gone over in those institutions.

As to the character of the work, it does not become me to speak. I may say, however, that it contains a faithful record of the results of an experience extending through a quarter of a century—a daily experience in the treatment of nearly every variety of disease incident to the human family, in the valley of a western river, midway between a northern and a southern climate, where the diseases of both are often seen, and both occasionally in the most malignant types. Such a record, it seems to me, is worthy a candid consideration.

Although the work has been produced more especially at the instance of those favoring the claims of the Eclectic branch of the medical fraternity, I nevertheless invite an examination by the profession at large. I cannot expect those who differ widely from me to adopt my views at once, nor do I desire to impose the results of my own experience upon *any* member of the profession, without a patient analysis

and careful examination ; *that*, however, I have a right to expect, in this age of progress and improvement, from all who are able to rise above the influence of professional pride and sectarian bigotry, and with whom the real advancement of the science, and the well-being of the race, are more than paramount to considerations of interest and arbitrary professional ethics. If the principles herein taught, and the practice herein claimed to be successful, after being faithfully and impartially tested by the lights of science and at the bed-side of the sick, shall prove to be erroneous and deceptive, then this work would deserve to be denounced, and its errors published to the world. But should the success of its teachings prove equal to its claims—should the work itself be found to contribute anything of value to the stock of medical science and practice—I ask, in all candor, if it should not be acknowledged? Even if the individual rights of the author are neglected—if his reputation as a benefactor of the race is not to be considered—yet, do not the great and paramount claims of diseased and suffering humanity, require as well the practical test as the open admission of the merits of the work?

If the practice recommended in this work were the result of mere theory, or the suggestion of a “closet practitioner,” its claims would rest upon a very different foundation. But since it is supported by the authority of a long and arduous experience, in an unceasing practice, tested in thousands of cases, and rigorously compared with a different course of medication, more particularly in the treatment of malarial diseases, it presents a claim for an impartial trial not always found. My conclusions were not wholesale original assumptions, followed by tests which it was guessed or hoped would produce the preconceived effects; they were rather the result of careful experiment and close observation, made, in the first place, by slight variations from routine practice, and repeated in many subsequent cases, with increasing boldness, and in a less limited and restricted application, until, step

by step, the principles of the new mode of treatment, in malarial diseases, at least, were clearly established and triumphantly demonstrated; and this, too, in thousands of cases of almost every conceivable grade, from the slightest intermittent to the most malignant congestive and bilious fevers.

No further apology or explanation, I think, is needed for the appearance of this work. And I now submit it to the public, trusting to the candor of those who have repeatedly called for its publication, and to the high toned moral integrity of a large majority of the profession, to do it justice; remarking, however, that, if in this I am destined to be disappointed, I believe, with an undoubting faith, that a generation is yet to come, of loftier and more liberal sentiments, of deeper sympathies with the whole human race, and freer from the trammels of sectarian pride, which shall be ready to award to truth its full demands.

It remains only to acknowledge my obligations to various medical authors and publications, used and referred to in the preparation of these lectures. I especially acknowledge my indebtedness to the lectures of Doctors Armstrong, Watson, and Stokes & Bell, on the practice of medicine; to several medical journals and retrospects for isolated facts—such as the *Boston Medical and Surgical Journal*, &c.; to the works of Magendie, Vogel, Schomel, Gross, John Hunter, and others, on pathological phenomena; to the voluminous works of Dr. Tweedie; to the extensive *Modern Practice* of Prof. Wood, of the University of Pennsylvania; and to Doctors Meigs, Condie, and Chapman. I am also under great obligations to Prof. W. Sherwood, of the Eclectic School at Cincinnati, for his valuable assistance in copying and preparing the work for the press.

CONTENTS.

LECTURE I.

INTRODUCTORY, - - - - - 1-20

LECTURE II.

FEVER.

Importance—Definition—General Descriptive Remarks—Stages: 1st, Forming;
2d, Cold; 3d, Hot; 4th, Sweating - - - - - 21-29

LECTURE III.

FEVER—CONTINUED.

General Remarks continued—Crisis—Two General Classes, Symptomatic and
Idiopathic—Their Difference—Broussais' Doctrine of Fever—Local Diseases
only secondary—Seat of Fever—Nervous System—Organs—Secretions and
Circulation affected secondarily—Typhoid Differs—Secondary Disease may
become Paramount—Violence of Fever—How Modified—Causes of Fever—
Miasmata—What is it?—How Produced—Where it Prevails—In what Sea-
sons - - - - - 30-38

LECTURE IV.

FEVER—INTERMITTENT.

Miasmata continued—Koino—Idio—Suggested Classification of Fevers—Old
Names Retained—Intermittent Fever—Types—Varieties—Stages: 1st, Form-
ing; 2d, Cold; 3d, Hot; 4th, Sweating—Modifications—Neuralgic Affections—
Sun Pain, &c.—General Remarks—Paroxysms may occur Day or Night—
Wearing out Ague—"Ague Cake"—Tendency to Relapse - - - - 39-49

LECTURE V.

INTERMITTENT FEVER—CONTINUED.

Periodicity—Diversity of Opinion—Bailey's Opinion—Cullen's—Explanation
Suggested—Complications—Gastro-Intestinal Inflammation—Congestion of
Liver, Spleen, and Brain—General Remarks—Differences of Susceptibility—
Post Mortem—Causes, Predisposing and Exciting—Prognosis—Diagnosis—
Treatment, Palliative and Radical - - - - - 50-59

LECTURE VI.

INTERMITTENT FEVER—CONTINUED.

Treatment continued—Palliatives—How Varied—Restlessness—Case Cited—De-
termination to Head—Doubtful Cases—Case Cited—Radical Treatment—
General Directions—Remedies—Former Practice—Evacuants—Dr. Morrow's
Practice—Reasons for Differing—Popular Remedies—Case Cited—Treatment
for Vomiting and Purging—For Nervous Irritation—Protracted Cases—Ad-
ditional Means—Tonics—Cinchona—Iron—Remarks on Various Remedies—
Quotation from Dr. Bell—Old School Doctrines—Differences between Au-

thors—Quotations from Dr. Bell—Remarks—Quotation from Dr. Wood—
Remarks - - - - - 60—78

LECTURE VII.

INTERMITTENT FEVER—CONTINUED.

Treatment continued—Neuralgic Cases—Sun Pain—Local Inflammations—Remarks on Treatment—Doctrine of Books set aside—Periodic Symptoms in other diseases—Scarlatina, Croup, &c.—Prophylactic Treatment—Bone's Bitters: Recipe—Substitute: Recipe—Cholagogue Pill: Recipe—General Directions—Concluding Remarks. Remittent Fever—Synonyms—Localities, Seasons, Periodicity—Differs from Intermittent—Differences of Susceptibility—Forming Stage—Chill, Fever, Remission—Modifications—Complications—Congestion of Liver—Biliary Derangement—Gastric Disorders—Variations of Pulse - - - - - 79—93

LECTURE VIII.

REMITTENT FEVER—CONTINUED.

Complications continued—Inflammation of the Lungs—Any Organ liable—Symptoms of Complication peculiar—Opinions of Authors—Local Disease secondary—Cause of Bilious Fever—Endemic Character explained—Influence of Age, Sex, Habit, &c.—Latent Period—Diagnosis—Prognosis—Duration—Post Mortem—Treatment—Old School Doctrines—Quotations—Remarks on Calomel—Bleeding—Dr. Wood on Mercury and Quinine—Reply - - - 94—112

LECTURE IX.

REMITTENT FEVER—CONTINUED.

Remittent Fever continued—Treatment when first called—How to proceed—Palliate till Fever begins to Decline—Antiperiodics—Recipe—If not arrested the first day, repeat—Emetics considered—Cathartics considered—Treatment has reference to Paroxysm—Tonics, when necessary—Complications—Different Complications—Gastro-Intestinal Symptoms, Treatment for.—Congestive Variety—Symptoms—Treatment.—Over-action of Liver, Remedy for.—Determination to the Brain—Symptoms—Treatment.—General Remarks.—Typhus Symptoms—Management of such cases—Diet and Exercise - - 113—129

LECTURE X.

CONGESTIVE FEVER.

Preliminary Remarks—Dr. Armstrong's Views—Synonymous with Typhus—Malarial Origin—Not Contagious—Mere modification of Bilious Fever—Symptoms—Treatment, Palliative and Radical—Complications—Gastro-Intestinal Disorder—Hepatic Disorder—Treatment—General Remarks and Directions - - - - - 130—148

LECTURE XI.

PERNICIOUS FEVER.

Modifications of Bilious Fever continued—Pernicious Fever—More at the South—Symptoms—Character—Symptoms continued—Condition of the Bowels; Blood—Diagnosis—Prognosis—Prof. Wood's opinions—Treatment—Two indications, produce reaction and prevent subsequent Paroxysm—Treatment continued—Wood's Treatment—Concluding Remarks—Professor Bell's Cases and Treatment—Remarks - - - - - 149—162

LECTURE XII.

YELLOW FEVER.

When and where it prevails—Endemic and Epidemic—Symptoms and peculiarities—Course—Three Stages—Symptoms of each—Extract from Wood—

Symptoms continued—Black Vomit: its occurrence in Charleston—Continued—Its prevalence in Natchez: Description of the town and surrounding country—Description of the Epidemic—Symptoms—General Remarks—Anatomical Character - - - - - 163—180

LECTURE XIII.

YELLOW FEVER—CONTINUED.

Cause—Vegetable and Animal Malaria—Reasons given—Additional Facts—Extracts from Dr. Perlee—Yellow Fever in Natchez in 1817; in 1819—Dr. Dixon on Yellow Fever in Charleston, 1817—Reference to other cases—Circumstances necessary to produce Yellow Fever—Contagiousness disproved—Diagnosis—Prognosis—Treatment—Quinine and Iron—Other Remedies—Remarks on Cathartics, Mercury, and Lancelot—Convalescence—Means of Prevention - - - - - 181—199

LECTURE XIV.

TYPHOID FEVER, OR CONTINUED FEVER.

Preliminary Remarks—Synonyms—Mode of Invasion—Febrile Symptoms—Different Periods of Progress described—Sometimes Periodic—Tympanitis—Peculiar Discharges—Petechiæ—Sudamina—Subsultus Tendinum—Posture of Patient—Fatal Case—Mode of Death—Duration—Favorable Result—Convalescence—Sequelæ—Anatomical Phenomena - - - - - 200—216

LECTURE XV.

TYPHOID FEVER—CONTINUED.

Cause—Doctrine of Contagion considered—It is Infectious—Difference between Infection and Contagion—Influence of Acclimation, Age, and Sex—Nature of Typhoid—Diagnosis—Prognosis—Treatment—General Remarks—Dr. Jackson's Method—Chomel's—Louis's—Statistics - - - - - 217—234

LECTURE XVI.

TYPHOID FEVER—CONTINUED.

Discussion of Treatment continued—Dr. N. Smith's Method—Review of the Authors cited—Proper Treatment—Remedies Recommended—Cases cited—Typhoid may be cut short—Further Measures for Protracted Cases—Management of Convalescence - - - - - 235—247

LECTURE XVII.

INFLAMMATION.

Definition—Symptoms—Changes produced—Functional, Structural—Causes—Nature—Results or Terminations—Resolution—Effusion—Induration and Adhesion—Hemorrhage—Suppuration—Quotation from Dr. Wood on Pus—Softening—Ulceration—Gangrene—Granulation—Cicatrization—Summary - - - - - 248—269

LECTURE XVIII.

INFLAMMATION—CONTINUED.

Chronic Inflammation—General Effects of Inflammation on the Blood—Hunter's Opinion—Gendrin's—Buffy Coat—Nervous Influence—Fibrin—Serum—Magendie on Bleeding—Effects of Inflammation beyond its Seat—Sympathetic Fever—Microscopic Changes in Inflammation—Contraction of Capillaries—Relaxation—Engorgement—Effusion of Lymph—Quotation from Tweedie—From Hunter—From Magendie, on Capillary Circulation - - - 270—293.

LECTURE XIX.

INFLAMMATION—CONTINUED.

Effects of Blood-letting—Magendie's Character and Researches—Quotations from him—Bleeding increases Serum—Various Experiments—Excess of Serum embarrasses Capillary Circulation—Promotes Inflammation—Quotation from Magendie—His change of Views—Bleeding predisposes to Inflammation—Quotation from Hunter—Tweedie—Review of his Doctrines—Results of Bloodless Practice - - - - - 294—315

LECTURE XX.

INFLAMMATION—CONTINUED

Treatment—Indications—Remove Cause—Equalize Circulation—Attention to Skin—Objection answered—Hæmastasis—Adjustment of Ligatures—Other Measures—Phrenitis—Inflammation of the Brain—Definition—Synonyms—General Remarks—Symptoms—Premonitory—Early Stage—More advanced Stage—Fatal Termination—Diagnosis—Prognosis—Anatomical Characters—Reference to Phrenology—Further Research urged—Causes—Treatment—Obscure Chronic Diseases—Neuralgic Affection - - - - - 316—338

LECTURE XXI.

OTITIS: INFLAMMATION OF THE EAR, ETC.

Preliminary Remarks—Peculiarities of Otitis—Predispositions—Brain sometimes Involved—Causes—Treatment—Local Measures—Constitutional Remedies—Recipes—"Alteratives"—Associated with Malarial Fever—Case of Neuralgia. STOMATITIS: INFLAMMATION OF THE MOUTH—Never Idiopathic—Symptoms—Causes—Treatment. THRUSH: Treatment—Condition of Mother—Idiosyncrasies—Nurse's Prescriptions. CANCRUM ORRIS: NURSE'S SORE MOUTH - - - - - 339—355

LECTURE XXII.

GLOSSITIS: INFLAMMATION OF THE TONGUE, ETC.

Description—Treatment. ANGINA: INFLAMMATION OF THE FAUCES—Variety of Symptoms—Peculiarities—Causes—Treatment—Chronic form—Treatment. TONSILLITIS: INFLAMMATION OF THE TONSILS—Symptoms—Local—General—Terminations—Chronic—Prognosis—Cause—Epidemic—Treatment—Strictures on Calomel and Lancet. ŒSOPHAGITIS: INFLAMMATION OF THE ŒSOPHAGUS—Symptoms—Treatment - - - - - 356—372

LECTURE XXIII.

GASTRITIS: INFLAMMATION OF THE STOMACH.

Subject defined—Division—Acute Gastritis—Generally secondary—Symptoms—Local—General—Favorable and Unfavorable—Of Disorganization—Duration—Modification—Pathological relations—Redness of Mucous Membrane—Legal investigations—Causes—Treatment - - - - - 373—383

LECTURE XXIV.

CHRONIC GASTRITIS—CHRONIC INFLAMMATION OF THE STOMACH.

Preliminary Remarks—Distinguished from Dyspepsia—Symptoms—Duration—Causes—Treatment—If caused by Over-eating, &c.—If caused by Spirituous Liquors—Active Purgatives to be Avoided. DYSPEPSIA OR INDIGESTION—Digestive Function considered—Effects of Fluids—Symptoms of Hepatic Disorder—Influence of Irregular Habits—Want of Exercise, &c. - 384—395

LECTURE XXV.

INDIGESTION—CONTINUED.

Treatment. HYGIENIC TREATMENT—Food, proper and improper—Fluids not advisable—Exercise—Summary. MEDICAL TREATMENT—Neuralgic cases—Spasm of Stomach - - - - - 396—406

LECTURE XXVI.

ENTERITIS: INFLAMMATION OF THE SMALL INTESTINES.

Synonyms—Parts Involved—Symptoms—Diarrhœa—Character of Stools—Febrile Symptoms—Prognosis—Post Mortem—Causes—Diagnosis—Treatment for various Causes—Cold—Acid Accumulations—Excessive Bile—Malarial Fever—Diet. CHRONIC ENTERITIS: Symptoms—Treatment. DIARRHŒA: Symptoms—Causes, &c.—Treatment for over-loaded Bowels—Treatment for Atony - - - - - 407—421

LECTURE XXVII.

DYSENTERY: INFLAMMATION OF THE LARGE INTESTINES.

Synonyms—Acute Dysentery—General View—Modifications and Varieties—Symptoms—Local—General—Caused by Worms in Children—Adynamic Form—Associated with Periodic Fever—Prognosis—Causes reviewed—Post Mortem—Treatment—Where caused by Cold—By Irritating Substances—For Derangement of Stomach—Emetic Recipe—Injections—Treatment in late Stage—Where caused by Worms—Epidemic Form—Antiperiodic Medicine—Obstinate Cases - - - - - 422—437

LECTURE XXVIII.

CHRONIC DYSENTERY, ETC.

Symptoms—Constitutional Derangement—Post Mortem—Cause—Treatment—Mild Cases—Ulceration—Diarrhœa—Varying Remedies—Prolapsus Ani—Diet. PERITONITIS: INFLAMMATION OF THE PERITONEUM—Preliminary Remarks—Varieties—Acute—Symptoms—Puerperal—Tympanitis—Periodicity—Post Mortem—Cause—Diagnosis—Prognosis—Treatment—Chronic Form—General Remarks—Symptoms—Treatment—Clinical Case of low Fever - - - - - 438—458

LECTURE XXIX.

DISEASES OF THE RECTUM.

STRICTURE OF THE RECTUM. Preliminary Remarks—Two Forms—Spasmodic Stricture—Symptoms and Causes—Treatment—Organic Stricture—Two Varieties—Non-Malignant—Symptoms and Causes—Treatment—Cancerous Formation—Symptoms—Treatment: Radical, Palliative. HEMORRHOIDS OR PILES. Frequency and Importance—Definition—Varieties—Constitutional Condition—Local Development—Primitive Type—Positions of Tumors—Bleeding Piles—Wart-like Excrescences—Diagnosis—Causes—Treatment—Constitutional—Local—Removal by Ligatures—Precautionary Measures

459—478

LECTURE XXX.

FISSURE OF THE RECTUM.

Introductory Remarks—Description—Appearances—Causes—Treatment—General—Local. FISTULA IN ANO: Remarks—Causes—Character—Treatment—Local and General. PROLAPsus ANI: Character—Symptoms—Cause—Treatment - - - - - 479—49

LECTURE XXXI.

COLIC.

Varieties. SPASMODIC or WIND—BILIOUS—PAINTERS'. WIND COLIC: Symptoms—Cause—Treatment. BILIOUS COLIC: Symptoms—Nature—Cause—Fatality—Anatomical Character—Treatment—Particular Remedy—Dioscorea—Remarks—Other Treatment. PAINTERS' or LEAD COLIC: Distinction—Symptoms—Paralysis—Chronic—Cause—Remarks—Diagnosis—Prognosis—Anatomical Character—Treatment—Prevention - - - - - 493—508

LECTURE XXXII.

OBSTRUCTION OF THE BOWELS, ETC.

OBSTRUCTION OF THE BOWELS. General Remarks—Symptoms—Causes—Treatment—Concluding Remarks. CONSTIPATION: General Remarks—Symptoms—Causes—Treatment—Case stated—Diet—Treatment of Obstinate Cases - - - - - 509—522

LECTURE XXXIII.

CHOLERA MORBUS, OR SPORADIC CHOLERA.

Introductory Remarks—Character—Symptoms—Cause—Predisposition—Anatomical Character—Diagnosis—Treatment - - - - - 523—530

LECTURE XXXIV.

EPIDEMIC CHOLERA—ASIATIC CHOLERA—MALIGNANT CHOLERA—SPASMODIC CHOLERA—CHOLERA ASPHYXIA.

Introductory Remarks—History—Progress—Appearance in United States—Symptoms—Stages—First, Chlorine Stage—Second, Positive Invasion—Third, Collapse—Symptoms of each Stage—Reaction—Convalescence—Variations—Anomalies—Blood in Cholera—Rice-water Discharges—Anatomical Character—Causes—Predisposing—Exciting - - - - - 531—548

LECTURE XXXV.

EPIDEMIC CHOLERA—CONTINUED.

Nature of Cholera—Primary Seat—Prognosis—Treatment of different Stages—Treatment of first Stage—Treatment of Second Stage—Treatment of Third Stage—Dr. Morrow's Treatment—Dr. Jordan's Report—Concluding Remarks - - - - - 549—566

LECTURE XXXVI.

MILK SICKNESS—SICK STOMACH.

Introductory Remarks—Symptoms—Case of Milk Sickness—Treatment—Character—Cause—Nature—Treatment—Note—Other Cases—Quotation from Dr. Haynes—Dr. McCall's Views—Cause—Treatment - - - - - 567—583

LECTURE XXXVII.

WORMS.

Remarks—Varieties—First Variety—Character—Appearance—Situation. Second Variety—Character—Appearance—Situation. Third Variety—Character—Appearance—Situation. Fourth Variety—Character—Appearance—Situation. Fifth Variety—Character—Appearance—Situation. General Symptoms—Origin—Spontaneous—Propagation—Remarks—Anatomical Character—Treatment for Lumbrici and others—Treatment for Tenia—New Remedy - - - - - 584—600

POSTHUMOUS WRITINGS OF PROF. T. V. MORROW - - - - - 601—779



LECTURES

ON THE

THEORY AND PRACTICE OF MEDICINE.

LECTURE I.

INTRODUCTORY.

GENTLEMEN—

Your attention is invited this morning to a general view of the extensive and important subjects pertaining to this chair. The *Theory and Practice of Medicine* is a title defined to some extent by its own terms; yet, neither the mere enunciation of the phrase, nor attention to the literal signification of the words composing it, will convey an adequate idea of the subject which it comprehends.

The Lectures to which you will listen as delivered from this chair, will have for their object your instruction in correct *Theory*, or those doctrines which, appearing to coincide with philosophical truth, are sustained and confirmed by experiment and observation, in health, in disease, and post mortem research; and the elucidation and illustration of a system of practice believed to be rational in its basis, truly scientific in its measures, and which has proven eminently successful in its results. And, rest assured, Gentlemen, I feel most sensibly the responsibility of my position. The duties of a Professor, occupying this chair, are laborious and

extensive, and must tax, to their utmost capacity, the abilities of even the most giant intellect, however qualified for the task, by study and experience. But were labor, physical and mental, all that is involved in the assumption of such a position, it were, comparatively, a matter of minor importance; the professor might perform his task with fidelity, and having accomplished "a' the hireling his day," feel no further concern.

But when I reflect upon the consequences which will flow from my labors in this capacity; on the result for good or evil which will follow every Lecture; when I realize that by assuming the position of a teacher, whatever of error may still attach to my Theory and Practice will be multiplied by the number of my pupils, that by misunderstanding or misapplying the facts taught by philosophy and by experience, I may mislead you, and send you forth among my fellow-men, under the guidance of false doctrine, and armed with the means of death to curse my fellow-men by magnifying their sufferings, and shortening their days, I certainly tremble under the weight of my moral responsibility. But when, on the other hand, I recur to the Past, and recall the tedious months and years through which, as an individual, I struggled on under doubts and perplexities; when I remember cases in which it is highly probable life was lost through my early errors, derived though they were from the highest professional authority; when I call to mind the satisfactory results which have attended my professional labors, since the adoption of my present views in regard both to theoretical and practical medicine, I cannot, as I do not desire to repress a feeling of confidence that my labors in this chair will not be in vain, if they enable you to commence your medical career free from many of the errors which embarrassed my early practice; and while they will save you the perplexity and mortification, with much of the labor, which truths gained by experience so often cost, they will shield your patrons from the dangers to which they would have been exposed had you been left to discover, as my colleagues and myself have done, the fatal errors which, under the semblance of science, and associated with truth, are inculcated by medical authorities.

I would not be understood as claiming for the system of medicine which will be set forth in these Lectures, that it embraces

all that can or should be known in Pathology and Therapeutics. I do not even claim that the doctrines taught will be entirely free from error; but I do honestly believe that the experience of my fellow-laborers and myself in the department of Medical Reform, for the last thirty years, has resulted in the discovery and addition to the common stock of scientific truth, of a large amount of facts and improvements, and in detecting and exposing a great number of errors in Theory, and abuses in Practice, which, associated as they were with, and disguised under the semblance of truth and science, had escaped detection by our predecessors. I may, with safety, add, also, that while the improvements thus made in scientific medicine are radical and obvious to the unprejudiced observer, they are of a character which would have been forever overlooked by self-inflated professional pride, and could never have been developed by the modes and means of research which the spirit and authority of assuming and illiberal conservatism would have been competent or willing to suggest. But though our modes of research have been, by self-constituted censors, declared to be erratic and "irregular," and though the field of nature, by us explored, had been almost forsaken by them and their followers, and its resources treated with contempt, yet the revolution which is now in irresistible progress throughout the profession, is so unequivocally distinguished by the improvements introduced, and the spirit of independence and liberality propagated by the reformatory rebels against the conservative hierarchy, that very soon we may expect to see a republic in medicine, established upon the broad basis of experimental science, laid by liberal minded and earnest philanthropists, and appreciated and admired by an intelligent and enlightened community.

Would we run over the pages of medical history, we should find that nearly all we know of any practical utility in the treatment of disease has been developed by experiment, and introduced in opposition to prevailing prejudices. We should be impressed, also, with the tardy progress which this department of human knowledge has exhibited, especially in modern times, as compared with that of almost every other. I speak now of the special department of practical medicine.

This branch of medical science probably preceded every other

in point of time ; that is, before any researches had been made in Anatomy, Physiology, Chemistry, or the like, man had been led by observation and experience to adopt certain measures to relieve pain and obviate disease ; so that without doubt, practical medicine had its origin in experiments, prompted by necessity, and grew into the character of a science under the culture of observation and experience. Although on this subject we have no resource but rational conjecture ; yet from the manifest circumstances of the case, there can be little doubt that such were the beginnings and early characteristics of the healing art.

The first annotations of our science found on the page of history are very obscure, but enough can be made out to denote that the practice of medicine was at a very early period in the hands of the priests, who were also the chief repositories of every other department of learning. The Egyptian priests associated the healing art with the mysteries of mythological religion, and while they probably employed very simple medicinal agents, their use was accompanied by various magical incantations, by which the imaginations of their patients were impressed, and to which were attributed, with some measure of truth, the cures which were effected. The same appears to be true of the early history of medicine in Assyria. This monopoly of learning by a particular class, and that class receiving their office by inheritance, was not favorable to the rapid development of truth, and of course the progress of medical science under such circumstances was extremely slow.

According to Grecian history, *Æsculapius* appears to have been the first to devote himself to the pursuit of medical science as a profession, but so closely were the ideas of medicine and religion associated in the minds of his countrymen, that the record of his life and discoveries is almost inseparably interwoven with the mythological fables of early Grecian story. He was deified after his death, and temples erected to his service. The priests of these temples succeeded to the titular honors of the profession, and perpetuated the prejudices which connected the treatment of disease with religious rites and ceremonies, and thereby retained the influence which mystery and superstition places in the hands of those who happen to be regarded as superiors. But these temples of *Æsculapius* became the means of promoting the pro-

gress of medicine by affording their priests ample opportunity to observe and make experiments on disease in its various forms, as presented by the vast numbers which their reputation attracted to their altars; and when subsequently the records of these temples became accessible to the votaries of science, they proved a source of much valuable information.

After the lapse of ages, in which the healing art was thus appropriated by an idolatrous priesthood, to increase their influence and sustain their authority over the minds and bodies of mankind, a new order of things began to be introduced. Reforms began to make their impression on the various departments of human affairs, as a spirit of general inquiry seemed to gain influence among mankind. The dawning of that comparatively bright period, in which the republic of Greece flourished, was also a new era in the history of medicine. Individuals of energy, industry and learning, began to devote themselves exclusively to researches into the laws of health and of disease, and to the discovery of remedial agents.

Hippocrates was so truly the first medical reformer, and the revolution he wrought in isolating the practice of medicine, and transmitting it to his successors in the form of a distinct science, was so great, that he has been universally awarded the appellation of Father of Medicine. He was a descendant of Æsculapius, but had imbibed the sentiments of Pythagoras, and especially of the sect of Heraclite, and thus combined the advantage of a practical medical education in an Æsculapian temple, with the independent, free and vigorous character of a liberal minded philosopher. And, although we find his theories partake of the errors and crudities of that early day, it is remarkable that he had always the sagacity to perceive where clinical observations contradicted his philosophy, and to follow experiment rather than hypothesis. Hence, he was a true Eclectic, a rational Empiric, if you please, and the head of the long list of public benefactors who have successfully labored to wrest practical medicine from the hands of mystical usurpers, and, pruning it from error and false theory, place its study upon the only correct basis, that of patient experimental research, and clinical observation. He was a careful observer of all the circumstances connected with human diseases.

The influences of atmospheric changes, of season, and of climate, in the production and modification of disease, attracted his attention, and his observations thereon have come down to our day. His general descriptions of diseases are still recognized in many instances as remarkably correct; and his views have always been treated with respect, and some of them are regarded as true expositions of medical philosophy at the present day.

It would be interesting and instructive to follow down the history of medicine, and observe the changes which were wrought in its doctrines and practice by the numerous individuals who have been prominent in the profession, and by the various sects or schools into which that profession has been successively divided. But the points to be presented in this Lecture, according to the plan I had marked out for myself, will not allow time for even an enumeration of the names of persons and of parties which illustrate the historic pages of medical science. I have merely adverted to the subject for the purpose of showing that medicine, as a science, had its birth in a revolution against exclusivism, assumption and blind superstition. And should you hereafter, as I strongly hope you will, make yourselves familiar with medical history, you will discover that during every period of the world, from the days of Hippocrates to the present time, and in every country where science has been at all cultivated, the medical profession has been continually agitated by discussions, not only as to philosophical doctrines and practical measures, but also as to the claims of certain sects to the exclusive honors of the profession, which claims you will generally find to have been based upon their adherence to the teachings of Hippocrates, or of some other celebrated reformer, whose particular star happened at the time to be in the ascendant.

In prosecuting your historical researches, you will find, for instance, that through a lapse of centuries the profession was divided about equally among the Dogmatists, who made Theory the only basis of legitimate Practice; and the Empirics, who professed to discard Theory, and be governed by experience alone. And you will observe, also, that both these sects claimed, and that with truth, to have derived their doctrines from Hippocrates himself. The Father of Medicine did reduce medicine, in some degree,

to the character of a theoretical system, but his Theory was based upon observation, and he spent his life in correcting it by experience, so that while these two sects were about equally descended from the great founder, neither one nor the other was entitled to set up the claim of exclusive legitimacy. And as they, in the heat of controversy, drove each other to opposite extremes, and were both entrenched midway between error and truth, you will observe that the middle ground of Theory and Experiment combined, remained unclaimed by either, although in practice occupied by both. And you will find that as science and the arts were cultivated, and the human mind expanded, this great discrepancy, in the doctrines of the contending parties, became so manifest as to invite a third party into the field. This was the party of the Methodics, who, by selecting in a truly Eclectic spirit, the truth from both extremes, and leaving them to cherish and sustain their errors, became really the representatives of Hippocrates, or, in other words, of reformatory and rational medical science.

When, in your review of medical history, you shall have passed the dark ages, you will find medicine, with other departments of human knowledge, presenting a scholastic aspect, and mere theorists assuming the titles, the dignities, and the honors of the medical profession, in contradistinction to all who ventured to cleave to nature and be governed by personal observation and practical experience. And here you will discover a reproduction of the old parties—the Dogmatists and the Empirics—in spirit and in fact, though not in name; and here again you will observe the necessity of an Eclectic reform to concentrate the truth and separate it from error. As is always the case the vacuum was at once filled. Boerhaave, with his sound judgment, his cultivated intellect and weight of moral character was the man for the occasion; and he in the spirit of a true Eclectic attempted to bring order out of chaos, and give the world a system of rational and practical medicine. He was not, however, sufficiently divested of reverence for antique theories; he took more upon credit or the endorsement of authority than he should have done. Hence, you will not fail to observe, that although he exerted a controlling and highly beneficent influence over the profession, which is felt even in our own times, yet he failed to settle certain important

points of controversy which, with others that have incidentally risen, have kept the ranks of medicine in a state of constant agitation.

The controversies of different authors and of rival medical institutions, form indeed a large portion of medical history since the revival of letters; and while, in the true spirit of European aristocracy and pedantry, the highest claims to the homage of mankind have been set up by those who assumed the title of *professors*, as if their theories were all oracular, and never to be called in question; the grossest contradictions and the most humiliating inconsistencies have been published as incontrovertible truth, and defended respectively by their friends, all equally claiming exclusive legitimacy, with a zeal and rancor only equaled by the malignity with which they have resisted the claims of the laity to examine these questions for themselves. The temples of *Æsculapius* have in fact been rebuilt in these latter days of reform, and their priests, assuming to possess and retain all medical knowledge, which they offer to reveal to novitiates, upon consideration of exorbitant fees, have, nevertheless, lacked the uniting spirit of the God of Physic: and while each temple has been occupied, as a kind of Babel, to exclude the rising tide of enlightened and reformatory public sentiment, they have all been used, at the same time, as forts and batteries for the prosecution and maintenance of hostilities between the authors or adherents of different medical tenets.

How much respect is due to a claim of exclusive professional legitimacy, when the claimants can at no time agree among themselves? And who can feel safe in acknowledging allegiance to an assuming hierarchy, or rely with unquestioning trust on its doctrines, when those doctrines have no more stability than the sand on the ocean beach? To show that this is not an unfounded insinuation, I read an extract from unquestioned history (*Boston*):

“At the termination of the last century, while the doctrine of Cullen was generally embraced, typhus fever was called a disease of debility, and was of course to be cured by tonics and stimulants. No sooner was it ascertained to exist, than bark and wine were administered in as large doses as the patient could be induced, or was found able to take. No doubt was entertained of their power

over the disease; the only question that caused any doubt in the mind of the practitioner was, whether the patient could bear the quantity that would be necessary for the cure.

“To this treatment succeeded that of cold affusion. The high character and literary reputation of the individual who proposed this remedy, its simplicity and easy application, the candid spirit which was manifested, and the strong testimonials which were adduced by his contemporaries, bore down all opposition, and we flattered ourselves that we had at length subdued the formidable monster. But we were doomed to experience the ordinary process of disappointment; the practice, as usual, was found inefficient or injurious, and it was, after a short time, supplanted by the use of the lancet. But this practice was even more short-lived than either of its predecessors; and thus, in a space of less than forty years, we have gone through three revolutions of opinion with respect to our treatment of a disease of very frequent occurrence, and of the most decisive and urgent symptoms.”

But while thus mutation and revolution stand forth so conspicuous in the history of the science, we have the most clear and conclusive evidence of the empirical and routine practice, connected with the reign of each, that can possibly be desired; thus showing the more than autocratic influence the leaders have upon the throng. In what system of medical practice, or in what newspaper puff or empirical advertisement, can we find greater uniformity of remedy or sameness of practice, as far as what is considered the essential remedy is concerned in the treatment of disease, than is to be found in the leading and standard works of the now waning system of practical medicine—a system which, though it be recited in classic style, mixed up with the varied learning of its authors, and beclouded with all the qualifications of supposed conditions and attendant symptoms, yet, when stripped of its gaudy plumage, and shown in its nakedness and truth, will exhibit a more universal application of a single remedy for all the “ills that flesh is heir to,” than can be found in any system considered of an irregular character. Look through the long catalogue of diseases, and you will find one remedy prescribed for nearly all of them, especially for diseases of children. If it is the jaundice, as a matter of course, a small portion of calomel must be taken;

if your child has irritation of the bowels, from teething, no remedy can as speedily divert it, by setting up a similar action in the liver, as calomel; if costiveness is found to exist, it is dependent on biliary derangement, and no other remedy will reach that organ but calomel.

In remittent fever, the universal teaching is, that the patient is bilious and mercury is the specific.

If congestive fever, nothing will unlock the portal circulation equal to calomel, and your case is fatal without it.

If it be catarrhal fever, a more searching remedy for diseases of mucous membranes cannot be found, and calomel must be given.

In nearly the entire range of eruptive fevers, without any attempt at explanation, we are advised to administer calomel.

In typhoid fever, its substituting influence must be brought to bear on the case, by way of slight salivation, or the patient is in danger.

Whooping cough can be greatly modified by repeated small doses of calomel.

In short, if it is not recommended, it is the exception to the rule; while the principle that runs through the whole is to administer calomel. Where, I ask, can be found a more systematic routine, or in what a more empirical practice? Fidelity to a single empirical remedy is the unbending rule, while the purity of faith is belief in its use.

It has, in short, become the only test of respectability and standing, that you are constantly in the habit of administering calomel. By it, you are adjudged worthy or otherwise of professional courtesy, and by it, alone, will you be admitted or rejected from social communion with the members of the profession.

Professional or scientific attainments are not made the subject of inquiry, nor the moral character of the individual taken into the account, in the consideration of credentials for membership in the medical conventions; while the profoundly ignorant of real science, the clod-hopper of yesterday, and the dregs of immorality and crime, are admitted to full communion, if they but acknowledge their fidelity to the one empirical remedy.

It matters not that they have never seen the inside of an institution of learning, or have never witnessed an anatomical demon-

stration, or heard from the lips of their high priests a single lecture; if they are not suspected of infidelity on the subject of calomel, they are offered, at once, the right hand of fellowship.

While on the contrary, though a man's acquirements are of the first order, literary and medical; bearing his credentials from the best institutions of our country of their own faith even, and possessed of all the moral qualities of a gentleman and a Christian; if he is not true to the faith, he can have no admittance. He is branded with "*quack*" by the fraternity, and thrust from among them.

Are these things right? Are they befitting a liberal and honorable profession? The good sense of every intelligent mind will answer in the negative. The progress of medical science is retarded and the lives of community are sacrificed on the altar of professional ethics, enacted for personal considerations and pecuniary interests.

"All men are created free and *equal*" is a declaration worthy of universal remembrance, and shall we be told that this physician or that one shall dictate whom we shall employ when sick? Or that if we see fit to send for another, without his approbation, he will withdraw from the case and refuse to have anything to do with it—and forever thereafter exhibit the scorn and neglect of one whom otherwise we might have regarded as a friend and companion?

Such being the high claims of "regular" medicine, and such the unstable character of its most prominent doctrines and measures, is it at all surprising that suspicions, and distrust, and a desire to investigate these claims, should be manifested in an enlightened community? It could not be otherwise; more especially when the spirit of European professional arrogance and assumption was imported to this country, with all its selfish rancor and venom, as the *Æsculapian* deity was carried from Greece to Rome in the form of a *viper*. And when it was attempted to erect the temples of medical idolatry and set up the doctrine of the divine right to legitimacy, on this soil consecrated to freedom and equality, it could not be otherwise than that an American people should not only resist the assumptions, but pry into and expose the fallacies and inconsistencies of the despotic system of

medicine. And it was a necessary consequence that the attempt to exact homage for theories wearing the guise of learning, and to enforce obedience to formulæ dressed in the costume of antiquity, should have produced a reaction which tended to inspire contempt for scholastic science, and to the rejection of the entire system of "old physic."

All who have been observers of the position of medical parties in this country during the last forty years, must be struck with the fact that the results just now hastily sketched have actually occurred. Never in the history of medicine have contending parties occupied such extremes, as have the adherents of "regular" medicine and the ultra reformers, the "Botanics," during the half century just closed. On the one side it was claimed, not only that learning is requisite to the medical practitioner, but that this learning must be gained in a particular way, and under the auspices of certain legitimate institutions. On the other, all scientific education was discarded as unnecessary, and the right of every individual to practice medicine was claimed to be as unrestricted as his privilege to cultivate the soil. One party made certain irritating and poisonous minerals the leading articles of the *materia medica*, almost to the practical exclusion of vegetable agents, and contended for the lancet with a zeal which nearly cut off ordinary hygienic measures; the other rejected all minerals, insisted that the vegetable kingdom supplied us with all needed medicines, and that with these, the bath tub, and steaming apparatus, any intelligent and energetic person might assume to grapple with disease in all its forms; deprecating and discarding the extraction of blood either generally or topically.

Here again is presented the middle ground of truth between the two extremes, and here, once more, has the spirit of Eclecticism, of rational reform, summoned her votaries and displayed her ensign. And, as Hippocrates opened out the records of the *Æsculapian* temple to the inspection of the world; as the Methodics in their day, and Boerhaave in his, culled truth from both extremes; so now does the Eclectic branch of the medical profession seek to gather truth from every source, from the aristocratic and the peasant practitioner, from their predecessors and contemporaries; and to enrich their store of remedies with valuable agents from

every kingdom of nature; rejecting only such agents and condemning only such measures as sound philosophy and practical experience have demonstrated to be both hazardous and unnecessary.

We claim the confidence of community for an enlightened selection from all available sources, of every measure, which observation and experience shall prove safe and efficient in the cure of disease.

This we profess to do *without prejudice*, and without fear or favor, with an open and frank avowal that we spare no pains or expense within our reach to secure the object sought.

Whatever humiliating associations may be connected with the achievement of the measure to be accomplished, or whatever of contumely may be cast upon us by "*Old Physic*" or its supporters, we have steadily persevered in this course, and the result is known to those who have sought to be informed.

We claim safer and more efficient substitutes for that "*Sampson* of the materia medica," that panacea of human maladies—Mercury, in its different preparations. We claim, also, to have made large contributions to the materia medica, of new and important agents not before known, and to have essentially modified the application of many old ones to subserve more valuable and important purposes in the treatment of disease.

We claim to demonstrate, beyond a chance for cavil, a more successful result in those inflammatory diseases for which the lancet is unsheathed, and the loss of the vital fluid is considered the *sine qua non*.

"We affirm that bleeding is a barbarous and unscientific remedy, and deny that it is ever necessary. In this matter we take our stand upon the facts recognized by the highest authorities in medical literature. We refer to the most recent and accurate researches in Chemistry and Pathology—to the experimental investigations of Andral, Magendie, Louis, Simon and many others, which have settled, beyond all doubt, and placed among the permanent facts of medical science, to be received by all medical schools of whatever Therapeutic faith, the phenomena of the blood, when its composition has been affected by hemorrhage, by bleeding and by various other agencies.

"It is indisputably established that bleeding produces a special

change in the composition of the blood. The change which it produces is not a removal of any effete or morbid material—not a removal of any element which tends to create or aggravate disease, but a removal of the most necessary and healthy portion, upon the presence of which we depend for the maintenance of health and vigor. Bleeding inevitably reduces the red or globulous portion of the blood, because it removes or destroys a certain amount of the red globules, and the loss which it produces is readily supplied by absorption of water and of comparatively crude materials, while the highly organized globules are regenerated with great slowness and difficulty.

“It is a well established fact that the red globules of the blood are essential to life, and that their abundance or scarcity is a criterion of the vital force and activity of the constitution. As the proportion of the red globules increases, the general vital power rises, and the activity or energy of all the organs increases; while a diminution of their ratio enfeebles or disorders the various organs, and predisposes to nervous and tuberculous disorders, and to the whole range of adynamic and cachectic diseases. If the ratio is diminished as much as one-seventh, general debility is the consequence, predisposing to disease, and diminishing the power of recovery; if as much as one-fourth or more, this reduction of vital power is incompatible with health, and inevitably results in some form of disorder.

“Is it not, then, exquisitely absurd to adopt, as a remedy in disease, a measure which, even in the most vigorous health tends directly, with rigorous precision, to destroy the vital powers, and *bring on disease*? Yet this measure has been, and still is sustained by many medical men, although clinical experience, as well as chemical science, has shown its injurious effects, and thousands in America and Europe have been, and are now demonstrating, that all forms of disease may be better treated without blood-letting than with it.”*

We claim to have discovered important truths in the treatment of many diseases not taught in the books, nor disseminated from the college halls.

We claim to have made distinctions in the character of a num-

* Buchanan's Introductory Lecture.

ber of diseases of the most vital importance, and adapted remedies to meet the character of each.

We claim also to have made important discoveries in surgical practice, by which many diseases heretofore considered incurable, without a formidable operation, and oftentimes incurable with it, are readily cured; thus saving to the patient great suffering and distress, at the same time perhaps an important member.

And we claim the confidence of community for as thorough and scientific acquirements in our graduates as in those of any other college in the country.

In short, we claim as high respectability of character, and as thorough scientific acquirements in our profession; far safer remedial appliances, and many new agencies in disease; a more successful result in practice; new views of Therapeutic medicine, and important improvements connected therewith, to so great an extent, that if the old and new system of medical practice were placed in juxtaposition, a striking contrast would be observed in all their leading features.

Such, gentlemen, is the position of parties in the medical world at the present time, and it is doubtless because you have surveyed the ground and appreciated the advantages presented by the position and resources, and approved the doctrines and liberal spirit of the American Eclectic branch of practical medicine, that you have entered the halls of an institution which proposes to teach those doctrines and inculcate that spirit. You come, I trust, impelled by an ardent desire for truth, and imbued at the same time with the indomitable spirit of American freemen, ready to hear and examine for yourselves, and having found the truth, to appropriate and disseminate it, fearless alike of the scorn or wrath of arrogant pedantry or self-conceited and assuming ignorance. You will commence your medical career early in the progress of American Eclecticism, and when, like the lamented MORROW,—whose decease has created the vacancy which I, his former partner and colaborer, have been called to fill,—the pioneers of this revolution shall all have passed to that

———“country from whose bourne
No traveler returns,”

it will devolve upon you to occupy their places, to sustain the cause

of liberal, scientific and rational medicine, and to illustrate, by your learning, your wisdom and your virtues, that freedom of thought and liberality of spirit are perfectly consonant with the utmost scientific, intellectual and moral development.

In attempting to shadow forth an outline of the course of lectures I propose to deliver, I must of necessity be very brief. To narrow down the scope of a course of lectures on the Theory and Practice of Medicine to the strict limits of these subjects, is perhaps impracticable. So essential is an acquaintance with Anatomy and Physiology, to an understanding of the nature and indications of disease, that constant reference to the subjects embraced by those departments is unavoidable. I would therefore urge it upon you to devote especial attention to those two branches. Therapeutics and the *Materia Medica* are also intimately connected with the subject of this, and even a knowledge of Chemistry is indispensable to him who desires to master the subject of practical medicine. Surgery and Physic have long been separated in the old world, and the distinction is in some measure obtaining in the new. This, however, ought not to be, for the surgeon should unquestionably possess a general familiarity with every form of disease, and with all the resources requisite to their treatment, while the treatment of surgical diseases, beyond the mechanical manipulations of surgery proper, falls within the purview of the general principles, without a knowledge of which no man can safely undertake the treatment of disease. In this country, both branches are generally united in practice, although the subjects are consigned to different chairs in the course of collegiate instruction. To my colleagues I must therefore refer you for information in all these departments of our profession, and shall, as far as possible in referring to them, avoid stopping to explain the facts involved, taking it for granted that you have been or will be thoroughly instructed therein.

With a view to facilitate the acquisition of any branch of knowledge it is important that a judicious classification of the subjects embraced should be made. Hence, writers on the various sciences and departments of human knowledge have devoted much attention to the systematic arrangement of the topics upon which they have been employed. Efforts of this kind have not

been wanting in medicine. Cullen made the first attempt at the classification of diseases, and his Nosology, like the other productions of that practical man, did much to simplify the subject of medicine. Good's Nosology followed that of Cullen. He arranged diseases into 6 classes, 22 orders, 121 genera, and 464 species. His classification is too ideal, and impracticable, requiring months of study to enable the student to remember it, and a much longer time to comprehend the fancied similarities upon which the grouping of diseases is made to depend. The only object of classification is the more easy elucidation of diseases and to aid the memory by association, but that of Good really obscures the subject and unnecessarily burdens the memory. Dr. Chapman's classification has reference to the different systems of the body, and he treats of disease under the heads of Diseases of the Circulatory System, Alimentary System, &c. This is a great improvement on the former system, yet it does not appear to me adapted to the elucidation of the subject in the form of oral lectures.

I shall not attempt a systematic classification of diseases, but leave myself at liberty to vary my course as circumstances may seem to suggest; in which way I shall be able to give my lectures, in some measure, the character of a clinical course. I shall however observe a general arrangement, as far as convenient, in view of the above suggestion, by which diseases will in the first place be grouped together in obedience to certain general and manifest outlines, as Idiopathic Fevers, Inflammation and Inflammatory diseases, Exanthematous diseases, &c.

In treating of diseases, a general distinction will be made between their acute and chronic form; and in discussing diseases of a local character they will be taken in the order indicated by proximity or relation of the parts involved. Thus: in treating of local inflammation, that of the head will be first discussed, then that of the ear, mouth, tongue, throat, œsophagus, stomach, &c.

In the consideration of each group of diseases I shall endeavor to present and elucidate such general principles as are dependent upon the course of symptoms which characterizes it, and the principal indications to be fulfilled, together with the complications and anomalous phenomena which have been occasionally encoun-

tered; and in considering individual diseases those general principles will be reduced to practical application; the most approved remedies for each indication will be given, and such recipes and formulæ announced as have been found by experience of benefit under the circumstances.

I shall close the present lecture with some brief suggestions in regard to some of the circumstances which it is necessary to consider in the investigation of disease generally.

The first thing in point of importance for a physician to ascertain, when called upon to prescribe, is the nature of the difficulty; in other words, what disease he has to treat. The old adage will apply here: "Find before bind." By this I do not mean that he must of necessity be able to give a specific name to the affection, but that the true nature of the morbid condition should be comprehended. The second important consideration is in regard to the origin or producing cause of the disease.

As tending to cast light upon the subject of disease, its cause and appropriate management, it is important also to inquire into the history of the case, how long since he was attacked; the character of the early symptoms; what were his previous habits, &c.

The age of the patient is often an important point to be considered in the investigation. Some diseases are almost peculiar to certain ages. Hence, where you find the symptoms of a disease not generally occurring in persons of the age of your patient, the opinion, which would otherwise have been formed from the symptoms, will be at least weakened, if not precluded. You would at least be led to look farther and ascertain whether the symptoms observed may not belong also to some other disease.

The sex of your patient will very frequently modify your opinions and your treatment. Any hereditary tendency, which may be derived from the family history, in connection with present developments, such as enlarged or indurated glands, &c., and any acquired predisposition of the individual, as indicated by his habits of life, place of residence, former diseases, &c., are subjects of very great interest to the practical and scrutinizing physician, and will by such never be overlooked. Temperament, also, will aid in forming correct opinions in regard to disease and its

symptoms. Cheerfulness, for instance, is generally a favorable symptom, but the sudden exhibition of vivacity, by a person of habitual melancholy, might, under certain circumstances, be a very unfavorable omen. Idiosyncrasy, and other peculiarities of constitution, should be known to the physician, where the patient has any, as a knowledge of such characteristics will not only affect his diagnosis, but very often materially vary his treatment. A red or a furred tongue may be habitual with an individual in health; hence you would not, if aware of this fact, decide that he had irritation of the stomach when his tongue was red, nor that his stomach was deranged by accumulation, when his tongue was furred; these symptoms, generally reliable, would need confirmation by other phenomena, in such a case. Some individuals cannot safely take an emetic; others will not bear opium in any form, and so on, and the physician who prescribes without learning whether such peculiarities have been observed in his patient, runs the risk of being disappointed in the operations of his medicine, at least, and serious consequences might be the result.

Where doubt exists in the mind of the physician in regard to the nature or extent of morbid conditions, he should resort to the various methods of investigation which will hereafter be explained, and examine *separately* every organ in the body: as, the stomach, and the tongue as an index to the stomach; the liver, by means of the evacuations, the skin, the eyes, and by pressure upon it; the bowels, by pressure upon them, and by the discharges from them; the lungs, by percussion and auscultation; the heart, by listening to its sounds, and observing the pulse, whether regular or irregular, full or small, frequent or slow, &c.

As my hour is almost expired, I shall not attempt to proceed further in these general remarks. What I have said, and what I should further say in this relation, will be clearly stated, and perhaps frequently repeated, in the progress of our course, and it is not deemed necessary to detain you with lengthy preliminary remarks, nor with an abstract discussion of general principles. Not that the general principles of medicine are undervalued, or are by any means to be lost sight of in these lectures, but it is believed they can be more clearly elucidated, and more forcibly presented, as they shall be found involved in the consideration of

the various forms of disease. The short time necessarily allotted me for the presentation of the subject in hand, in its various aspects, requires that our time should be husbanded with economy, and that such subjects only as are indispensable to our final object, should be introduced, or at least discussed at any length.

The object at which I shall aim, during my occupancy of this chair, will be to present to the class *all* the important and indispensable information in my possession, in relation to the true nature and proper treatment of disease, and especially such facts as have come under my personal observation, and such principles as have been developed or confirmed by my own experience. I say that it will be my object to be full and explicit on these most important subjects, many of which you can learn from the living teacher only; but I shall crowd into the course also as much general information, and as many minor topics, as can be done consistently with my leading object. I shall, in the main, speak from experience, and when I derive my information entirely from others, in speaking of subjects in which I have had no experience, I shall give them due credit for, while I pass over to them the responsibility of, the instructions thus given.

LECTURE II.

F E V E R .

Importance — Definition — General Descriptive Remarks — Stages :

1st, Forming ; 2d, Cold ; 3d, Hot ; 4th, Sweating.

As FEVER is admitted to hold the first rank in point of importance in the history of medical science, as well as in a practical point of view, it is of right the first topic in a course of lectures on the Theory and Practice of Medicine.

Before considering the particular forms of Fever, our attention should be directed to the subject as a whole. With this, therefore, we shall be occupied this morning, reserving the details for subsequent lectures.

According to the most modern and popular authorities, Fever is a disease in which all the functions of the system are more or less deranged, and of which the most striking phenomenon is a palpable disturbance in the sensorial functions. Along with the irregularity of these functions we usually find increased heat, frequent pulse, disinclination for food, and a general dullness of the patient. It will be observed that these symptoms imply, in essence, a universal derangement of the organism. All the organs of the body are out of tune, and cease to perform their functions with the regularity and system essential to health, and the proper distribution of the vital energy. And these evidences of universal derangement, it will be also observed, do not imply particular local determination.

We start, then, with the proposition, that increased heat, frequent pulse, and disinclination for food, are the leading symptoms characteristic of the great class of febrile diseases. It should be

remembered, however, that these symptoms, although generally present, are not universally so. Excited pulse and hot skin are the *most* invariable symptoms in febrile cases; nevertheless, we have seen cases where both these symptoms were absent. Hence, we see the fallacy of relying solely on any special phenomena, as invariable and certain diagnostic symptoms. Many exceptional cases occur under circumstances which will be noticed in the discussion of particular forms of disease. Even in the cold stage of Fever, these two symptoms are often absent; and perhaps in a *majority* of instances they would not be recognized in the forming stage. As a general thing, however, on a careful examination, the skin on the body is found to be pungent and hot in the cold stage; while on the extremities it is sensibly below the healthy temperature.

I shall now, with a view to more particular illustration, resort, as far as practicable, to a general classification. The object of such classification and division of diseases is to make a more distinct impression upon the mind of the learner, and by the frequent repetition of the important principles connected therewith, more indelibly to engrave them there.

Four stages may be enumerated as comprehended by the general outlines of Fever: 1st, the forming stage; 2d, the cold stage; 3d, the hot stage; and 4th, the sweating or declining stage. By separately considering these several stages, you will the better retain all the phenomena of this group of diseases, and also perceive the great importance of the division. For were I to enumerate all the general symptoms of Fever, without regard to the difference of stages, I could not, without confusion, say where the characteristic symptoms may be considered diagnostic, and where they may be overlooked. But by making this division, we can clearly ascertain the particular symptoms, peculiar to each stage, separately; and these, taken together, will give you all the characteristics and phenomena of what is understood to be Fever.

1. *Forming Stage.* This stage rarely commences suddenly. It creeps slowly, insidiously, and almost imperceptibly upon its victim, while he is almost unconscious of being indisposed. Persons under the influence of the forming stage feel a languor and

listlessness, and an indisposition to make any mental or bodily effort. This gradually increases, until they are finally admonished that they are "not very well." This stage continues for a longer or shorter period, depending on the natural resisting force of the system, and the concentrated influence of the cause that produced the attack. On the duration of this preliminary stage will greatly depend the intensity and obstinacy of the disease after it is formed; for when it has been thus insidious in its approach, making gradual inroads upon the functions of the economy, and gradually incorporating its causes with the elements of the system, its removal will, of course, be proportionately slow and tedious. But if the system yield readily to the influence, and the disease be developed at once, unless it entirely overpower and soon forcibly destroy the animal functions, you will find but little difficulty in throwing it off. This is a matter of observation and experience at the bedside of the patient, which is probably not altogether compatible with the theory of the times. The foregoing are not the only symptoms accompanying this stage of Fever. A general soreness and lameness over the whole system, an "aching of the bones" throughout the body, as the patient will express it, is strikingly characteristic. Especially is this the case in our malarial fevers. At length a slight pain is experienced in the back, which, in some instances, extends through the whole vertebral column. Finally, an occasional chilly sensation, and an inclination to draw up more closely to the fire will be manifested, in addition to the other symptoms, even before the patient is fully conscious of being sick. When this symptom begins to develop itself, and the individual does get close to the fire, there is almost always a palpable increase of the same phenomena, and shortly the character of the disease is fully developed. In some instances, but not invariably, headache accompanies the preliminary symptoms. As I have already remarked, many of these symptoms may be entirely absent; nevertheless, I am giving you, gentlemen, the symptoms that, according to my observation, are very characteristic of the general group of diseases called Fevers. Accompanying this stage, there is usually considerable restlessness at night; the sleep is unsound, and the patient is disturbed more or less by disagreeable dreams; producing debility on rising in the morning. Lowness of spirits

is a very common symptom. Persons who, in health, scarcely know what it is to be gloomy, find themselves depressed and low spirited, while wholly unable to assign any cause. These symptoms, characterizing the incipient stage of Fever, continue through an indefinite and varying period, usually, however, quite a number of days previous to the second stage, which we shall next consider.

2. *Cold Stage.* This we understand to be the positive development of the disease. It is the first decided step which convinces the patient that he is positively sick; especially if he has not been much accustomed to disease. He may, during several days, have experienced the symptoms of the incipient stage without apprehending danger, and even refusing to regard himself as indisposed; and not till the rigors of the cold stage have commenced, it may be, will he acknowledge himself to be sick, and employ the means of cure.

The symptoms of this stage vary much in different forms of Fever, and in different individuals. In ordinary Chills and Fever, the sensation is that of coldness, accompanied by slight rigors; in Typhus, slight chills, with occasional flashes of heat over the body, characterize this stage; while in Ague, it is distinguished by an uncontrollable shaking, the motion of which is distinctly communicated to the bed. In many cases the chill is but slight and almost imperceptible; still by close observation it may be recognized. If there be no other manifestation, a careful examination of the fingers, will establish the presence of this stage, by the blueness of the nails and the shriveled appearance of the capillaries. In other cases it is palpable to the most careless observer. The sunken appearance of the eyes, and blueness of the lips will, unequivocally, tell the real condition of the patient. The slight uneasiness in the back and limbs, which commences in the forming stage, is now developed into positive pain and distress, so much so, in many cases, that the suffering in the cold stage is decidedly more severe than in any other. So excessively severe, sometimes, is the pain in the back, that the patient complains of it *alone*, and applications are necessary to give him relief. The suffering, indeed, is so powerful in some cases, that the patient sinks into collapse, and dies in the first chill. At the South, the

second or third chill is often fatal ; in the North, this is less frequently the case, though it has occurred here also. Hence, you see the importance, gentlemen, of understanding these different stages, so as to have a proper appreciation of the disease in all its modifications, and to know what remedies are applicable under the various phases which may be presented.

In this stage the pulse is frequent, but small and depressed ; in some cases hard, in others weak and compressible under the finger. In very severe chills it is scarcely perceptible. In a majority of cases it is tense, small, and thread-like, and very frequent, more frequent in fact than in the hot stage ; for, as will be shown hereafter, it then generally becomes more full and bounding, but less frequent. Exceptions to these rules will, however, occasionally be found.

The capillary circulation, during the cold stage, is diminished. This is decidedly the case on the extremities, and more or less so on the entire surface, although the skin on the body may present a pungent feeling. The face is pale, and, as I have before remarked, the toe and finger nails are blue. A return of the paroxysm, in some cases, can only be recognized by reference to the fingers and toes.

In all cases you will find the respiratory system involved. The respiration is difficult and hurried, and the patient will request the doors and windows to be opened, even when suffering sensations of extreme cold. Nausea and vomiting are, also, very common symptoms of this stage, both in intermittent and remittent bilious fevers. We often find these the only symptoms accompanying the cold stage, except the appearance of the extremities before described. You will often find this nausea, vomiting, and even purging, very much resembling cholera morbus, attending this stage of intermittent fever. This should admonish you to be on the alert, for these symptoms may tend to mislead you. If you are called to see a patient who thus seems to be suffering with cholera morbus, it is important that you be able to distinguish between this disease and the similar symptoms attending the cold stage of fever. Your reputation rests upon your decision, and this you must arrive at by careful inquiry into the history of the case. Without a correctly detailed statement of the facts and

symptoms which may have been gradually developed, you will be liable to run into the error of treating it as a case of cholera morbus. But if you learn and carefully consider the history of the case, you will most certainly hit upon distinguishing phenomena, which will enable you to recognize the nature of the disease. Otherwise your patient may slip through your hands, and you be left to the unfortunate reflection that you have neglected to apply the means that might have saved the life of a fellow being. If any of you have already assumed the responsibility of practitioners, you will, I doubt not, recognize a coincidence between the symptoms and circumstances I have given, and those which have occurred under your own observation.

Thirst is another striking symptom in the cold stage of fever. You might suppose that the hot stage would be marked by a greater demand for water than the cold, but the opposite is the case. There is, of course, thirst during the hot stage; but it is not so intense or importunate as during the cold stage. The mouth is not as dry in the cold, as it is in the hot stage, but it is clammy, and the patient experiences a constant desire for cold drinks. There is also a general diminution of vital sensibility in the various organs of the body.

The continuance of these symptoms in different individuals is quite variable. In some cases they will continue only a few minutes; in others they will last for hours. In intermittent fevers, the urinary secretion is increased in quantity, and almost destitute of color, in the cold stage, while in the hot stage it is high colored and has a very peculiar odor; the quality and quantity both being essentially changed in a very short time.

Such, in general terms, is the cold stage of fever. One after another, the symptoms gradually pass away, until the patient, as it were unconsciously, throws off the bed clothes, and the hot stage is gradually developed. The recurrence of the chill during the progress of intermittent fever, as a general rule, is as regular as the revolutions of time.

3. *Hot Stage.* We come now to speak of the Hot Stage. You now find a gradual return of the capillary circulation on the surface, and, apparently contrary to the ordinary principles of philosophy, more free and easy respiration, and a more calm and

quiet condition of the system. The hands begin to swell; the veins become filled; the cheeks are flushed; the sunken and depressed appearance of the countenance is changed; and, in many cases, a bright, excited expression is observed; while the intellect is often more sprightly than usual, and in many instances becomes excited to a condition of temporary insanity. The extremities become warm, so that instead of requiring hot irons or bricks to the feet, the patient will expose them to the cool air by removing the covering.

The pulse in this stage is exceedingly variable. It generally becomes more full, and bounding, and less frequent. In some cases, however, it is hard and wiry; in others, soft and compressible, or open and expanded,—varying in frequency from sixty to one hundred and twenty. In some cases the frequency is very much diminished, showing a low grade of vital force, which is not a favorable symptom; implying a slow and tedious recovery. A great increase in the frequency of the pulse is also an unfavorable symptom. A patient with a pulse at one hundred and fifty cannot be considered in as good condition as one whose pulse is only one hundred and ten; still, there are persons possessed of peculiar idiosyncrasies, in whom a pulse of one hundred and fifty per minute would not be an alarming circumstance. And it is important to understand these peculiarities of constitution in forming your prognosis of disease; to bear in mind these exceptions to the general rule; if you do not, you are liable to be misled. I shall attempt in these lectures, as far as my experience is drawn upon, to give you nothing but facts derived from actual observation in practice. Every practitioner has discovered phenomena which no one else has described; and these very facts are exceedingly valuable to the young physician.

When, from predisposition, peculiar organization, or the particular circumstances of the case, there is a great tendency to determination to the brain, the head becomes hot and painful, and delirium frequently occurs. In such cases there is a powerful throbbing of the carotid arteries, and this is sometimes so great that the patient will distinctly feel a sensible motion of his pillow. In this stage of the disease, if there be not depression of the vital force, the sensibility is often increased to a degree that becomes

exceedingly disagreeable and annoying to the patient. He becomes restless and uneasy; the pain in his back causes him to tumble from side to side, in search of an easy or more comfortable position. Or, he will complain of pain in the limbs and general restlessness. In high grades of fever there is often great wakefulness, if not entire inability to sleep; while in low grades there is drowsiness, and a constant tendency to sleep. For while the sensibility becomes thus exalted in high grades of fever, in low grades it becomes really blunted and depressed; so much so, indeed, as often to impair and sometimes literally destroy ordinary senses. Smell and taste become blunted, and the hearing very much impaired.

In view of the foregoing remarks it will be inferred that, in this stage of fever, the vital functions generally are impaired, which is really the fact. Digestion is arrested; food is loathed, and if taken into the stomach remains there undigested, to the great inconvenience of the patient. Sometimes nausea, if not present in the cold stage, will manifest itself in this; but this is an exception to the general rule. I have observed it in a few instances. As has been remarked, thirst is a usual attendant of fever, but exceptions occasionally occur. Generally, however, there is a morbid demand for water, and a moderate use of it will in no wise aggravate the disease; though a too free indulgence may cause a disagreeable sensation of depression in the epigastric region, if not nausea and vomiting. All the Old School practitioners were formerly in the habit of forbidding the use of cold water in fever,—a practice as barbarous as it is unnecessary. In many instances patients have been entirely relieved by drinking cold water: causing a *crisis* that you will see spoken of in your books.

The appearance of the tongue may have an important bearing in this stage of fever. While in some cases it is covered with a thick, clammy, white coat, in others the coat is yellowish brown; and in others, still, the surface is red, or perhaps dry and parched; but these appearances will be referred to hereafter. I am now speaking of these matters in general terms, but when we come to speak of particular diseases, we will refer to them more definitely. In some cases the mouth continues moist, in others it is

dry and parched; in some it is coated at first; in others, not till towards the latter part of the disease. I have seen cases in which the teeth became covered with a black sordes, in the early stage. The condition of the bowels is as variable as the cases that present themselves for treatment. While in some cases the bowels are in a loose condition, amounting, perhaps, to diarrhoea, in others there is obstinate constipation. Again, the bowels will be found in a perfectly healthy state, with a regular and natural evacuation every day. But usually all the secretions are deranged, which may be considered the general rule; and an opposite condition, the exception. In some instances the skin is dry; in others, the hot stage is accompanied by a profuse perspiration; the latter, however, is not of frequent occurrence. I have already referred to the urine, as being diminished in quantity and high colored; but more of this when we come to describe particular forms of fever.

4. *Sweating, or Declining Stage.* Upon this stage I shall not dwell at any considerable length. The fever gradually and almost imperceptibly declines; the skin becomes soft and moist; the urinary secretion becomes more copious; the pulse more free and compressible, and gradually diminished in frequency; the patient becomes more quiet and calm; and, in short, in intermittent fever proper, all the phenomena of disease disappear, and the patient is left in a condition of comparative health. Thus much for a general view of the four stages of fever.

LECTURE III.

FEVER—CONTINUED.

General Remarks continued—Crisis—Two General Classes, Symptomatic and Idiopathic—Their Difference—Broussais' Doctrine of Fever—Local Diseases only secondary—Seat of Fever—Nervous System—Organs—Secretions and Circulation affected secondarily—Typhoid Differs—Secondary Disease may become paramount—Violence of Fever—How Modified—Causes of Fever—Miasmata—What is it—How Produced—Where it Prevails—In what Seasons.

Our last Lecture was mainly occupied with the phenomena of Fevers in general, and I would direct your attention for a few moments longer to the same subject. We had proceeded as far as the last stage of Fever, which brought us legitimately to what has heretofore been called the *Crisis*. Most authorities have taught the doctrine of critical days; or, that Fevers have a period in their progress where there is a special tendency to a favorable or unfavorable result, called a *Crisis*. In Intermittent Fever this is strictly true, as regards a single paroxysm. It is quite reasonable to suppose that those diseases, also, which are produced by specific causes, are uniform in their different stages, and run a regular and definite course, should have a natural crisis. In contagious diseases this is found to be the case, but it cannot be said of other forms of Fever, so far as my observation has extended. A single fact may suffice to settle this point; at least it is satisfactory to my mind. We now know, as certainly as we know that Intermittent and Remittent Fevers exist, that they can be arrested in a very short time, or that they may run on to an

indefinite period ; much beyond the time laid down as their natural duration. This is sufficient, in my view, to settle beyond the possibility of a doubt, that so far as these forms of Fever are concerned, they cannot be considered as having a crisis, or as necessarily tending to a change, favorable or otherwise, at any stated time.

I will now proceed to speak of the different varieties of Fever. They are, in the first place, divided by the authorities into two general classes, namely : *Symptomatic* and *Idiopathic*. I refer to this, at the present stage of our course, for the purpose of clearing away the rubbish that has accumulated around the subject, that I may more clearly set forth the doctrine of Fever properly so called. Symptomatic Fever is not, really, entitled to the appellation of *Fever*, but belongs, legitimately, to the subject of inflammation. It is universally considered to be the result of local disease, which is the real disease ; while the Fever is only an attendant symptom. It is not, therefore, strictly entitled to the name of Fever. But since this division has been so generally made, I think proper here to explain what is understood by the terms, remarking, however, that it is not a distinction which will be observed hereafter.

Symptomatic Fever, then, is one which results from a local injury or inflammation of one or more organs of the body : as the lungs, liver, stomach, &c. ; while Idiopathic Fever is independent of particular local disease or determination. This subject will be referred to again, when we come to speak of Inflammation.

You will perceive that I have varied from the usual order of subjects, in first considering the class of diseases called Fevers ; for Inflammation is usually thought to hold the first position in point of importance, or is thus treated in the books. I have done so because I consider this great class of diseases to occupy the most prominent position among diseases, in view of their more general prevalence and fatality.

The doctrine prevailed, at one period in the history of medicine, that local inflammation was an invariable attendant on all forms of Fever ; or, in other words, that Fever was only a symptom, and not a disease itself. This was the doctrine of M. Broussais. He located the cause of Fevers in the gastro-intestinal

mucous surfaces, and to them he looked for the origin of every phenomenon of Fever, whether Typhus, Yellow, Bilious, or any other form. This theory was denominated the doctrine of the Solidists, in contradistinction to its antagonist theory, that of the Humoralists.

Broussais held that the solids of the system played the principal part in local inflammations; and he did not believe that the fluids had much to do in bringing about the disease, though he admitted they became secondarily affected, and might bear an important part in its continuance.

I have no idea that the Fevers of our Western country, or those of a similar character met with in other parts of the world, are produced by local disease. True, inflammation of the liver, spleen, mucous membrane of the stomach and bowels, or other organs, may be attendant on malarial Fever, but that this local disease is the cause of the Fever, or essential to it, I have seen no reason to believe. The primary impression of the malarial poison, producing these Fevers, is made upon the nervous system, invariably causing an essential derangement of the nervous functions. That this is the primary or initial step in the Fevers to which I particularly refer, I hope to establish with satisfactory certainty. In observing these Fevers, we uniformly find first, that the sensorial functions are impaired; secondly, the secretory functions are vitiated; and thirdly, the functions of the circulation are deranged. By careful attention you will observe that these circumstances come in as constant attendants upon each other in the order just stated. Where inflammation has flared up, from predisposition or other special cause, in any organ, it will readily subside when the primary disease is removed. We see, accordingly, in an individual with Remittent Fever, accompanied by enlargement of the spleen, or congestion of the liver, when the Fever is relieved, which generally is easily done if properly treated, the phenomena of the local difficulty readily and promptly subside. This I have seen in hundreds of cases where unmistakable symptoms of local inflammation existed. But if the general febrile disease be allowed to continue, till the local and reflected organic derangement becomes the paramount one, as it does in some cases, the whole train of morbid action would not entirely disappear with the

decline of fever. Yet it will be found that the means properly employed to arrest the fever, will not, in such cases, in any degree, aggravate the local difficulty, and the latter will be readily controlled by judicious treatment. An instance of this form of reflected disease, though it may not be connected with malarial fever, may be cited as an illustration. I refer to inflammatory rheumatism. No one supposes that the local inflammation, found in the ankle or wrist of the patient, having general symptoms of rheumatic disease, is the primary difficulty, and the one to be treated with a view to a cure; but, by the use of remedies appropriated to the primitive disease, the reflected irritation may be seen to subside, as if by magic, together with the accompanying febrile symptoms. But we have seen the reflected inflammation, as in chronic rheumatism, as well as in other diseases, become the paramount difficulty, so that the removal of the primary and general disease from the system, would not relieve the local affection. This, however, seldom, if ever, occurs where prompt and appropriate general treatment has been employed in the acute stage, but, as before stated, the local inflammation, instead of becoming chronic and fixed, passes off with the general symptoms.

All the fluids of the body necessarily become deranged in the progress of protracted fevers. The secretions are all disturbed, and the effete matter which should be thrown off by the excretory process, is retained in the system and becomes a source of disease. That large amount of waste material, which, in a healthy condition, passes off through the skin, the kidneys and the bowels, is retained, to irritate the organs and derange their natural functions. It is, therefore, apparent that the blood must become essentially vitiated. Now, to prove the position I have taken in regard to the fevers of this country, and all idiopathic fevers in all parts of the world, a reference to the symptoms is all that is necessary. The gradual succession in the disturbance of the functions is essential to this point. Those symptoms characteristic of the forming stage, such as aching of the limbs, restlessness, debility, disinclination to exercise, and pain in the back, all go to prove, beyond the possibility of a doubt, that the nervous functions are the first disturbed. Very generally, it is true,

organic disturbances, perhaps nausea and vomiting, soon follow, though not invariably. The liver, even, is sometimes found undisturbed, performing its functions with regularity, though it generally becomes affected at an early period in the progress of these fevers. Constitutional idiosyncracies and other circumstances cause differences in this respect in different cases. It is, therefore, evident that structural disease of the organs is not necessarily present in the incipient stage of fever; that it is not the cause, but merely an effect of the disease. Another very important fact bearing upon this point, also, is, that you can cure nine cases in ten of these Western fevers, without a single dose of medicine which shall act upon any of these different organs; without either emetic or cathartic, cholagogue or diuretic; showing most clearly that the local affection is not the cause that produces or keeps up the fever. The cure evidently depends on the removal of the cause which is operating on the nervous system.

It is, therefore, to my mind clear, beyond all question, that the form of fever under consideration does not result from, nor depend upon any local organic disturbance, by which it may chance to be attended, but that its seat is in the nervous system, and there alone can be found. There is yet another fact, which, if needed, might be cited, confirmatory of the conclusion at which we have arrived. I now refer to the fact which all have observed, and which the authorities fully recognize, that during the apyrexia of intermittent fever the patient usually enjoys a comparative state of health, as nearly perfect, indeed, as could be expected under the circumstances, were all cause of disease entirely removed. The secretory functions are resumed, and performed in a natural manner; digestion goes on properly, and for a day or two the patient feels free from all symptoms of disease, goes about his daily avocation, and, could he continue in this condition a few days, would doubtless attain complete health. Now, does any one suppose that there is local disease apart from the nervous system which produces these phenomena? Is it not conclusive that the position I have assumed is positively the true one?

The fevers under consideration are the malarious fevers, espe-

cially of the Western country ; though such fevers, characterized by the same phenomena, and equally fatal, are endemic in many other parts of the world. Typhoid fever is not included in the class of fevers of which we have been speaking, but is regarded as a different disease, subject to somewhat different laws, probably produced by an entirely different cause, and exhibiting in its progress a train of symptoms dependent no doubt upon local disease. Such may be the case too with our remittent and congestive fevers ; for, as I have said, the reflected disease may become the paramount one. The disease of the liver, for instance, may continue, after the original malarial fever has subsided ; or the course of treatment instituted in the early stage of the fever may so operate on the mucous surface of the stomach and bowels as to set up a local irritation that will continue to produce slight fever, long after the primary disease has been removed. The subject of typhoid fever we shall discuss hereafter. It is supposed to be produced by idio-miasmata, or animal poison, and there are interesting facts connected with the history of the disease, which have an important bearing on its treatment. I will, however, make the remark, that the doctrine of Broussais before referred to, although in the main positively false, did work a salutary modification in the modes of treatment for typhoid and most other forms of fever, substituting a mild, soothing, gentle course of treatment for the previous practice, which had sacrificed more lives than the fevers would probably have destroyed without medication.

The violence of fever is generally proportionate to the extent or intensity of the cause which produced it. Thus, in slight local injuries we expect little difficulty to follow, while from more severe lesions we anticipate corresponding severity in the sympathetic fever. So in idiopathic or malarial fever, where the intensity of the cause is slight we find the fever slight, but where the malarial poison is more concentrated we meet with fevers of greater violence. Hence, at the South, where vegetable miasma is not only more general, but more concentrated or intense, we should naturally expect to find the most severe and fatal forms of fever ; and it is there that malignant, intermittent and congestive fevers prevail.

I desire, now, to occupy a few moments in considering the

cause of fever, before speaking of the different varieties, that I may the better explain the divisions which should be made in classifying these diseases. I recognize but two causes of fevers, the vegetable malaria or koino-miasmata, and the animal malaria or idio-miasmata. These two causes may exist separately and produce different phenomena, or they may operate together, producing a combination of their peculiar symptoms. Thus we have many cases of well marked intermittent fever, accompanied or immediately succeeded by the train of symptoms peculiar to typhoid.

It has been observed in some regions of country that certain diseases prevail in certain particular seasons of the year. It has been observed also that at those seasons of the year when certain kinds of vegetable matter abound, particular forms of disease are developed. Still, all the examinations of the atmosphere which have been made, have proved fruitless of any satisfactory discoveries as to the real nature of malaria. It is true that a German physiologist professes to have discovered, in districts where intermittent and remittent fevers were prevailing, animal matter floating in the air, but from what it emanated he could not determine. The fact would, it seems to me, raise strong suspicion that this animal substance consisted of infusoria arising from decaying vegetable matter. Since the announcement just alluded to, other circumstances have been shown to exist, which go to prove that this animal matter holds to the diseases there prevalent the relation of cause to effect. Experiments also prove beyond dispute that in the decomposition of vegetable matter animalculæ are produced in the most rapid succession; having an exceedingly evanescent existence. Whatever may be the vegetable decomposed, wherever it may be placed, and whatever the attendant circumstances connected with the process, so far as microscopical investigations have discovered, it is impossible to produce vegetable decay without developing animal life. Now these animalculæ, although they swarm in the atmosphere and are inhaled at every breath, are as imperceptible to any of our senses, as if they had no existence. This, together with the fact above mentioned, that animal matter has been detected in the atmosphere in some malarious districts, seems to strengthen the suggestion that the cause

of these periodic fevers exists in the atmosphere in the form of animal poison. The treatment of these diseases also strongly sustains this doctrine, and while taking a comprehensive view of the whole subject, I cannot avoid a conviction that there is truth in it.

The circumstances necessary to the production of this miasma are well settled. A certain degree of heat and moisture is requisite, for otherwise vegetable decomposition cannot take place. Hence, we can predict with some safety, in the early part of a season, whether or not malarial diseases are likely to prevail. When we have an immense growth of vegetable matter, we anticipate a sickly season, and under favorable circumstances for vegetable decomposition such will be the case; but if a state of the weather adverse to such decomposition follows, the season will certainly be healthy, as regards malarial diseases. This is in accordance with the observations of the most watchful physicians, and decidedly agrees with my own experience. For instance: I have seen in the early part of the season a vast amount of vegetable growth in particular localities where intermittent and remittent fevers were apt to prevail, and anticipated much sickness; but upon the occurrence of a drouth, or of a series of heavy rains keeping vegetation submerged, a remarkably healthy season succeeded. You are aware that vegetable matter, excluded from the air, even under water, will not undergo decomposition. I have seen a log taken out of water where it had lain for twenty years, with the bark as perfect and apparently as green as when it was put there. Vegetable matter, then, will not decay if submerged in water by heavy and continual rains. So if we have a very wet season, sufficient to cover the surface of the earth in the low marshy lands, where there is always the greatest profusion of vegetation in settled countries, we will have a healthy season. Now, I would ask, should not these facts, which have been noted by the most careful observers, have an important influence upon our minds, in the formation of opinions on this subject? But still further observations have been made. If we have this immense growth of vegetation, and in the early part of the season a long drouth comes on, accompanied by much heat, sickness will prevail until the water is evaporated, and the surface of the earth becomes dry, when the sickness will subside and the remainder of the season be healthy.

Another circumstance is known to exert a serious influence upon the general health of certain sections of the country. I refer to excavations for railroads and canals, especially upon the borders of rivers. Here is thrown up a large amount of vegetable matter partially decayed, and according to the views presented, we should look for a prevalence of malaria, and under such circumstances intermittent and remittent fevers invariably occur. So, also, upon the borders of ponds and reservoirs of water, as long as they are full the general health is not affected by them; but as soon as they are drained, and the vegetable matter exposed to the atmosphere and rays of the sun, the miasma rises, and as far as the atmosphere is impregnated with it, this form of disease prevails. Dr. Ferguson, a celebrated English physician, has made observations, which, it is claimed, oppose this position; but the attendant and surrounding circumstances are entirely omitted in the argument, and the facts which are given, to my mind prove the reverse of the position assumed by him; and I think when his reasoning is carefully analyzed, it will not militate against the views I have advanced. We have all, I suppose, heard of the draining of those great reservoirs in Northern Ohio, producing in neighborhoods on one side of them a great amount of disease, while on the opposite side it would be remarkably healthy. This is evidently owing to the fact that, during the decomposition of vegetable matter, and consequent generation of miasma, the wind blew so as to spread the malaria over that part of the country which became unhealthy. Many instances of this kind have been observed in different parts of the country. Another fact is worthy of notice. I have already referred to the fact that a degree of heat as well as moisture is requisite to vegetable decomposition, so that if either heat or moisture be absent, vegetable decay will be prevented or arrested. I believe it has been found by minute observation that such decomposition does not occur at a temperature below sixty degrees F. Hence, it is said in the South, when frost occurs in the autumn it stops the prevalence of disease. Indeed, I well recollect how anxiously I watched for the first frost, before I had learned to arrest intermittent and remittent fevers with promptness and certainty; and I always expected to find my patients much better on the morning after its first appearance.

LECTURE IV.

FEVER—CONTINUED.

Miasmata continued—Koino—Idio—Suggested Classification of Fevers—Old Names Retained—Intermittent Fever—Types—Varieties—Stages: 1st, Forming; 2d, Cold; 3d, Hot; 4th, Sweating—Modifications.—Neuralgic Affections—Sun Pain, &c.—General Remarks—Paroxysms may occur Day or Night—Wearing out Ague—"Ague Cake"—Tendency to Relapse.

At the close of the last lecture, we were speaking of malaria as a cause of fever: and the same subject will occupy our attention for a few moments this morning.

I have already referred to the two kinds of miasm,—the koino miasmata and the idio miasmata, and I will here remark that all forms of disease, properly ranged under the title of fever, may with safety, in my opinion, be referred to one or the other of these two descriptions of malaria, as the primary cause. And I believe that a division arranging fevers into two classes, as, for instance, "Those caused by Koino Miasmata," and "Those caused by Idio Miasmata," would in reality conform more to nature and to the facts met with in actual practice, than any classification which has been made by writers. Any modifications or anomalous manifestations connected with individual cases, would be readily explained by reference to the concentrated state of the malaria, the idiosyncracies of the persons affected, or other modifying circumstances connected with each case. It is very difficult, however, to find a term which will express the whole character of a disease, or to adopt a plan of classification which will conform in a satisfactory manner to the varieties of cause and pathology;

and as an effort at a new classification of fevers might lead to some confusion, without, perhaps, a compensating advantage in the promotion of practical science, I shall, in treating of fevers, adhere to the divisions adopted in the books. I will, however, here remark, once for all, that I do so for convenience sake, merely, believing at the same time that the only real and proper distinction, which in accordance with truth and science ought to be made, is that above indicated,—dividing fevers into two general forms or classes, having reference to the causes which produce them.

We shall, therefore, consider three varieties of fever,—Intermittent, Remittent, and Continued or Typhoid.

I. INTERMITTENT FEVER.

This form of fever is vulgarly known by the several names of Ague and Fever, Fever and Ague, Chills and Fevers, and perhaps some others. It is characterized by febrile paroxysms, recurring at regular periods, and the entire absence of fever or other symptom of disease during the interval between the paroxysms. The period intervening between the end of one paroxysm and the commencement of the next is called the *intermission* or *apyrexia*. The whole period, comprehending the space of time from the commencement of one paroxysm to that of the next, is, by some authorities, called the *interval*,—a term which is certainly very exceptionable, in view of the strict definition of the word. Other authorities apply the term *revolution* to the same period, which I regard as a much better term, and shall therefore employ it. The *type*, or species of intermittent fever, has reference to the time occupied by one *revolution*; hence, we have, ordinarily, three types, or varieties of this form of disease: the Quotidian, Tertian, and Quartan. In the Quotidian type, the paroxysm occurs regularly, at the same time every day; in other words, its *revolution* embraces a period of twenty-four hours; the paroxysm of the Tertian type occurs every alternate day, the revolution occupying forty-eight hours; while the Quartan has a revolution of seventy-two hours duration, its paroxysm recurring once in three days. The terms tertian and quartan are incorrectly applied in this case, but as we do not desire to be captious, we shall, for the sake of

brevity and to prevent confusion, follow the books in this particular. In addition to these three, some other types are mentioned in the authorities, such as the Quintan, Sextan, Septan, &c., but these are very rarely met with in practice, and I merely refer to them in passing. There are, however, modifications of the three leading types above described, which you will meet with very frequently in practice. These modifications have reference both to the severity of the paroxysms and their periodical return.

The Quotidian type may be found occurring twice a day, morning and evening, requiring a corresponding difference in the treatment: for you may arrest the morning or evening chill, and still the other may continue every day, unless specially treated. This modification may with propriety be termed a double quotidian.

The Tertian, also, sometimes assumes a double character, the paroxysms occurring every day; and this modification you may mistake for the quotidian type, and treat it accordingly. But when you have arrested one part of the disease, or one paroxysm, the other will continue as though you had done nothing. The double tertian may, however, be distinguished from the quotidian by the paroxysms occurring at different hours on alternate days; by an alternate difference in the severity of the paroxysms, or by a combination of both these peculiarities. The Quartan type is also sometimes double.

There are other modifications of this disease, which it is important, also, to bear in mind; among which is the *anticipating* chills and fever. You will frequently be called to prescribe for ague, apparently of the quotidian type, where the chill comes on regularly one or two hours earlier every day than it did on the preceding day; and unless you take this fact into consideration, you will allow your patient to have one more chill than is necessary.

In fact, it is highly important, as was remarked in a former lecture, in studying any disease, to learn everything you can pertaining to the case. You should ascertain, if practicable, every minute particular respecting its history, that you may know how to adapt your remedies: for by prescribing without understanding these peculiarities, you are very liable to fail in arresting the disease; whereas, if you look carefully into these matters, you

may be able to arrest it without difficulty. When I come to speak of treatment, I will refer more particularly to this subject.

The *Deferring Ague* is another modification of this form of disease, in which the peculiarity is precisely the reverse of the last,—the chill recurring at a later hour on each succeeding day. This, although of less practical importance than the variety just described, deserves to be noticed, as it influences in some measure our prognosis: for while the anticipating form is regarded as unfavorable, the deferring type is looked upon as a favorable characteristic, since the latter frequently runs itself out, or terminates in the tertian type, which is always considered less formidable, and usually less severe than the quotidian.

There is another modification with which you will meet in practice, characterized by an irregular return of the paroxysms, and which is called *Erratic Ague*. This is a still more difficult variety, owing, especially, to its being usually associated with some local difficulty. Of this I will not, however, further speak at this time, having mentioned these several modifications and peculiarities as exceptions to the general and regular forms of intermittent fever, usually encountered in practice, and not for the purpose of introducing in this place any special directions as to treatment.

We come now to consider the different stages of intermittent fever. In a previous lecture I mentioned four stages as pertaining to fevers generally, but one of these,—the forming stage,—had reference merely to the premonitory symptoms common to all varieties of fever. The other three stages, although manifested in a greater or less degree in other forms of fever, may be regarded as belonging legitimately and specially to intermittent fever, being developed in a very remarkable manner in each fit or paroxysm of the disease. These three stages are the Cold, the Hot, and the Sweating stage. They generally, as I have already said, succeed each other in regular order, and they are preceded, as in other forms of fever, by the incipient or forming stage described while speaking of fevers generally. A few additional remarks may perhaps be proper here in reference to this stage.

1. *Forming Stage*. There is nothing peculiar in the symptoms of this stage in intermittent fever, beyond what was said in my

general remarks on this subject. The natural duration of this stage is very variable, and it terminates in the cold stage. This, however, is not necessarily the case, for this, as well as most other forms of fever, may be arrested, by proper attention, in the forming stage, without the development of the other stages at all. Cessation from labor, keeping within doors, restriction to a simple and digestible diet, with the administration of a cold infusion of boneset three or four times a day, and a hot foot-bath on going to bed, will usually be sufficient to avert an attack of ague or other form of fever, in the first stage.

2. *Cold Stage.* This stage is characterized by more palpable and definite symptoms than the forming stage. The patient feels an inclination to yawn and stretch, with a sense of chilliness "creeping up the back." This chilliness is scarcely perceptible at first, in many cases, but increases gradually until it is clearly recognized; it also extends to the limbs. Now, an aching in the back, and perhaps, in a majority of cases, pain in the head, begins to be experienced; and, in some instances, there is a sensation as if cold water were thrown upon the whole body. Presently there is a trembling, sometimes in one set of muscles and sometimes in another, and the aching in the body increases. The pulse becomes excited, small and frequent. The capillary circulation diminishes over the entire surface, especially on the extremities,—the skin assuming an appearance similar to that of a picked goose, called *cutis anserina*; the teeth chatter, the lips become blue, and the countenance has a shrunk appearance. The nails become decidedly purple, both on the hands and feet, and the fingers so diminished in size, that if the patient wears rings, which before fitted closely, they will drop off on placing the hand in a position to permit it. The tongue is usually pale, and there is a dry sensation in the mouth,—not parched, as in the succeeding stage; but it is accompanied by insatiable thirst, more so, even, than that experienced in the hot stage: and it is remarkable, that cold drinks do not increase the sensation of coldness, nor hot drinks diminish it. In fact, the more nearly the patient draws up to the fire, the greater will be his feeling of coldness: for while one side may be burning, the other will feel as if freezing. The urine becomes pale and copious.

During this stage there is always an irritated condition of the nervous system, as indicated by the neuralgic pains in every part, and by the moroseness and mental irritability of the patient. The breathing is oppressed and labored, and a sense of suffocation is frequently experienced. These various particulars constitute the principal symptoms, ordinarily, of the cold stage of intermittent fever.

There are, however, many variations in different cases and at different seasons of the year. Sometimes the cold and shaking are very severe, at other times almost entirely absent. In cases of the latter description, however, a careful examination will detect coldness in the ends of the fingers and nose, with a blueness of the nails, which are often the only symptoms of chill. The reaction during the next stage is generally in an inverse proportion to the intensity and duration of the chill: if the latter is slight, you may anticipate a great degree of arterial excitement to follow; whereas, after very severe and protracted "shakes," there will be comparatively little fever. In all cases reaction comes on gradually, the symptoms of the cold stage passing off by almost imperceptible degrees, until the patient becomes easy and quiet, in the commencement of the

3. *Hot Stage.* From the state of rest and comparative calmness just described as terminating the cold stage, the symptoms of reaction become gradually developed. Respiration becomes more free and regular, but more hurried than in the cold stage; the pulse rises in strength and fullness, becoming more open and less frequent; the skin becomes warm and the capillary circulation free, and all the characteristics of febrile reaction finally are developed.

This stage, like the preceding, is very much varied, both in duration and intensity,—being generally, as before remarked, proportioned inversely, in both these respects, to the chill by which it has been preceded. In many cases the fever continues nearly to the commencement of the next chill, so as to approximate the character of a remittent fever, the only difference being a distinct intermission of the fever, instead of a mere remission, as seen in the latter form. In fact, cases frequently occur in which a well marked intermittent degenerates into a remittent, especially under

injudicious treatment; while, by prompt and appropriate means, a remittent fever, if not at once arrested, may be made to assume the less obstinate form of an intermittent.

In the hot stage the thermometer will indicate a positive increase in the temperature of the body, often rising from 98 to 110 degrees. You may, indeed, easily recognize this increase of heat by the sense of feeling. The pulse is exceedingly variable in different individuals, its frequency being greatly increased in some, while in others it is but little affected in this respect, though you will always find it more open, full and bounding than in health. Restlessness is another symptom of this stage; for though the pain in the back and limbs is less severe than in the cold stage, it still exists, producing much uneasiness. The patient, in this stage, sometimes becomes delirious, and unless you are careful you may mistake this as evidence of inflammation of the brain; and here again you see the necessity of carefully inquiring into the history of the case; of learning how the patient was taken, and, if possible, the cause of the disease. The secretions are all diminished in the hot stage; the skin becomes dry, harsh and husky; the urine is diminished in quantity and essentially changed in quality, is high-colored, and does not deposit a sediment, on cooling, as it will in the sweating stage. The mouth is dry and husky; the tongue, sometimes, becomes parched and cracked, presenting a red and dry appearance. In some cases there is diarrhoea and in others the most obstinate costiveness, while in others we meet with all the symptoms of cholera morbus. In children, convulsions often occur, during the cold or hot stage. Hence, if called to see a child in convulsions, you should ascertain whether or not the attack was preceded by a chill. If you do not take the precaution to learn the history of the case, you may attribute the convulsions to worms or some other cause different from the true one, and thus subject the patient to unnecessary treatment, leaving the real disease untouched. If convulsions are caused by chill, your measures will be directed first to palliate the present difficulty, and then to interrupt the next paroxysm.

The symptoms of the hot stage gradually subside, and it is succeeded by the

4. *Sweating Stage.* The skin, now, gradually becomes more

soft, natural and finally moist with perspiration; the tongue is less dry and thirst less urgent; the patient becomes calm, and is perhaps disposed to drop into a sleep. The urinary secretion is less highly colored and deposits a palpable sediment, which differs much in different cases. The moisture of the skin increases until a copious perspiration, more or less free, is established, and this continues until all the febrile symptoms are entirely gone. The pulse becomes natural and the patient is restored to comparative health. This constitutes a paroxysm of intermittent fever.

I have referred to many exceptions to, and variations from, the usual course of this disease, while describing its several stages; and other modifications might with propriety be mentioned in this place. I have seen cases in which the hot stage was entirely wanting, the patient passing from the cold immediately into the sweating stage. I have seen other cases in which the sweating stage was absent, the skin merely becoming soft and the pulse being diminished. Sometimes the only marked symptom is a well defined nettlerash, preceded perhaps by a slight chill, and occurring with as much regularity as the paroxysms in any case of intermittent fever. The first case of this description that occurred under my observation was that of a convict in the Ohio Penitentiary while I was physician to that institution. He had been in the prison for some time, when he was taken with a nettlerash; the whole surface being covered with an eruption resembling hives. I administered a cathartic and left him. On calling the next day he was about his business; but on the succeeding day, at the same hour the former symptoms occurred. Supposing it might arise from some irregularity of diet or gastric irritation, I gave him another mild cathartic, and awaited the issue; for I suspected the presence of malarial influence, and was determined to test it. With the return of the next period came the same symptoms. Since that time I have seen other similar cases, though some of them were complicated with bilious fever. Only a few days before I left home, a friend of mine had an attack of this kind; and you will probably be surprised to hear that I gave him large doses of quinine and iron, when his pulse was beating 120 per minute and his skin covered with an eruption; yet such was my prescription, and the result was a prompt and thorough cure.

I should remark that in this case there was a high grade of fever, with daily remissions, during which the eruption would partially recede and the febrile excitement in a measure subside, though the pulse retained the frequency above stated; and during this remission the medicine was administered.

There are other modifications of intermittent disease, which have very properly received the name of "masked ague," which evidently arise from the same cause, and are amenable to similar treatment with unequivocal intermittent fever. The most common of these anomalous intermittents, is that neuralgic affliction familiarly known as "sun pain." You are called to see a patient suffering with a severe pain in one side of the head, and from the intensity of the pain and the excited pulse in the carotid arteries, you may take it for inflammation of the brain and treat the case accordingly. Your remedies, however, are ineffective, and in fact the active depletion produced may do serious mischief. A careful examination of the history of such a case will soon satisfy you that it is an attack of ague. You will discover the intermittent periodicity of the pain, its neuralgic character, and possibly may detect an incipient chill or other symptom, however slight, which may go to define the nature of the affection. Now instead of subjecting your patient to the inconvenience and perhaps injury of treatment for inflammation of the brain, you will palliate the present symptoms and prevent another recurrence, by antiperiodic remedies. I trust you will pardon me, gentlemen, for so frequently urging upon you the importance of careful investigation and discrimination in the treatment of disease. My sole object is to give you the advantage of experience which I have derived from long and careful observation.

Although the affection just referred to is commonly called "sun pain," I have never been able to discover any propriety in the term, for it is just as likely to occur at one time of day as another. I have known it to occur at sun-rise, at noon, in the evening, and even at midnight. The pain may be confined to one side of the head, or it may extend over the entire head; it may be most intense in or over one eye, in the face, or in a single tooth, and in all these cases it will return and depart, as regularly as the paroxysms of chill and fever. I remember the case of a lady in

whom the pain was confined to one eye. She was subjected to salivation, cupping, &c., but the eye suppurated, burst, and was lost of course. I learned the history of the case and became satisfied as to the true nature of the disease. She afterwards had a similar attack in the other eye, which was completely relieved by anti-periodic treatment.

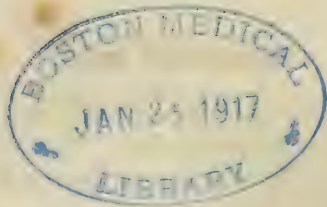
Under the term "masked ague" may be embraced various other neuralgic affections characterized by periodical paroxysms or exacerbations. The pain may be experienced in the limbs, back, chest, stomach, uterus, or any part or organ of the body. The pain may be the only manifestation of the disease, or it may be accompanied by functional derangement of the particular organ affected. Thus the uterine system may be the seat of this peculiar affection, and amenorrhea, dismenorrhea, or uterine hemorrhage may be the consequence. A neuralgic affection of the chest is sometimes characterized by periodic bleeding from the lungs, corresponding with the paroxysms of the pain. I have also seen a very interesting case, where a young lady suffering under protracted dyspepsia, with slight gastralgia, and other symptoms evidently periodic, was completely relieved by the use of the appropriate treatment for "masked ague."

It may be remarked that the paroxysms of intermittents do not as often occur in the night as in the day time, yet they are by no means confined to the day, for we have seen them occur at all times of night, from sunset to sunrise. You will also find taught in your books, a doctrine which I do not believe is verified by correct observation: that is, that particular types of the disease generally occur at certain times of the day. Thus it is said that the quotidian type occurs early in the morning, the tertian about noon and the quartan in the afternoon. There may be some tendency to such rule, but the instances of variation are so frequent, as every one's observation will soon prove, that no practical reliance can be placed in it. I have seen the quotidian occur as frequently in the afternoon as in the morning, and so of the others, so that although the doctrine is laid down in the best authorities, I now declare that after an experience of more than twenty years, I have not the least confidence in its truth.

The doctrine has been taught that the best course to adopt with

intermittent fever is, "to let it wear itself out," but frequently the process wears out the patient first. My doctrine is to stop it as soon as possible. By so doing you prevent its terminating in organic disease of the spleen, known as "ague cake;" which would be a sufficient reason for a prompt cure, were no other or greater evil to be apprehended.

I might here remark that you will find, in many instances, a tendency to a return of the disease at set periods. The laws of periodicity appear to extend beyond the time governing the return of each paroxysm, and to produce a predisposition to a relapse, at periods of about seven days. So that a return may be apprehended on the same day of the week on which the last occurred; or to state it categorically, there is a tendency to a return on the seventh, fourteenth, twenty-first, &c., day from the time of the last chill. Physicians familiar with this disease have observed this tendency, and many have adopted the plan of fortifying their patients against the disease at those particular times. Whether the rule is to be relied upon or not, your minds should be directed to the question, as the days mentioned have long been considered important days, and your reputation as well as success in practice, will be promoted by a familiar acquaintance with all these doctrines. You will hear it said frequently that "any one may cure ague," but the physician is expected to keep it off, and if you can, by attention to these peculiarities of the disease, steal a march upon, and thus conquer it, as I believe you may in many cases, it is quite a triumph for the profession.



LECTURE V.

INTERMITTENT FEVER—CONTINUED.

Periodicity—Diversity of Opinion—Bailey's Opinion—Cullen's—Explanation Suggested—Complications—Gastro-Intestinal Inflammation—Congestion of Liver, Spleen and Brain—General Remarks—Differences of Susceptibility—Post Mortem—Causes, Predisposing and Exciting—Prognosis—Diagnosis—Treatment, Palliative and Radical.

In the last Lecture the subject of *Intermittent Fever* was considered ; a general description of the disease in its several stages was given, and many modifications, variations and peculiarities were referred to, or briefly described.

Let us, this morning, examine more closely than we have hitherto done, that remarkable and distinguishing feature of this form of disease, so often mentioned, its periodicity. The fact has been stated already, and fully sustained, that this fever is marked by regularly alternating paroxysms and intermissions ; and, perhaps, all has been said which can at present have any practical bearing. Still the inquiring student cannot but feel a desire to go beyond the mere fact, and study the philosophy of such phenomena, and, if possible, ascertain the laws by which they are governed ; and, as a teacher, it would afford me great satisfaction to be able to develop the subject in hand with satisfactory clearness. This, however, I can by no means promise ; but must acknowledge, with my predecessors and contemporaries, almost total ignorance of the laws that operate in producing the regular periodical return of the paroxysms in this form of disease. Still it may not be unprofitable to spend a brief space in considering some of the

theories which have been advanced, and in presenting such considerations and suggestions as have offered themselves to my mind, upon this interesting subject. For, although I have nothing of a tangible or conclusive character to submit, which may satisfy your laudable curiosity, or even guide you in the treatment of the disease, yet suggestions will be made which may perhaps assist you in future researches and investigations. For this purpose, and with a view of directing your attention to every thing connected with the nature and progress of this important class of diseases, I take up the subject at the present time.

On this topic there is a great diversity of opinion, and several fine spun theories have been adduced by writers. Willis, I believe, started the doctrine that the cause of intermittent disease was a fermentable substance in the blood; that the blood contained certain elements, which, whether carried into the circulation by absorption, or suffering certain changes produced by the nervous influence or some other cause, underwent fermentation and thus produced disease. But I cannot perceive how this theory can be reconciled with the periodical character of this disease, and much less how it can explain it. The question instantly arises, if the disease is dependent upon a fermenting element, constantly going the rounds of the circulation, why does it return at regular stated periods? Why should not the effect of the fermentation be continuous? The theory does not explain the facts, and I consider it but a vagary of the imagination.

Bailey sought to explain this periodic tendency, by referring to the change from an erect to a recumbent posture, so regularly occurring every day. But how this can explain the peculiarity in question he has failed to show, and had he attempted it, he would have found himself involved in a difficulty from which he could not have escaped. One single fact is sufficient to prove the futility of his theory, and that is, the frequent occurrence of the double quotidian type of fever while the patient is constantly in a recumbent position, until the disease is arrested.

Cullen's explanation may be considered more reasonable and philosophical, perhaps, than any of the others. He attributes its periodicity to the diurnal changes, from day to night, and from night to day. If the paroxysms always returned daily, there

would seem to be some propriety in referring them to, or at least associating them with these daily changes. But, since we so often have the paroxysm returning twice a day, once in two or once in three days, it fails to afford a satisfactory explanation. Above all, if the diurnal changes have this influence upon the animal economy in intermittent fever, why should other diseases be exempt from it? Why should not typhoid fever, small pox, &c., be influenced by the same cause? No answer can be given, except to repeat that the assumption does not explain the phenomena of periodic fever.

We inquire, then, what explanation, consistent with known facts, can be given of this remarkable feature of intermittent disease? And, though I may not be able to answer this question with entire confidence, nor perhaps suggest a theory more satisfactory to you than those I have just adverted to, yet I confidently believe the views I shall present, if properly investigated, will tend to more valuable practical results. If they do not constitute a conclusive solution of the mystery, they nevertheless lead towards one, as I believe, and since the matter is so completely shrouded in obscurity, any thing that will tend to develop it ought to be discussed and investigated in all soberness and candor.

I have no doubt that the true explanation of the phenomenon in question is to be found only in the nature of the specific cause that produces the disease. We find that every principle and element in nature is governed by laws peculiar to itself. Periodical change is a peculiarity of animal life. To perform its natural functions it must have its regular rise, progress and decline. If, then, we suppose, and I have little doubt of the truth of the supposition, that intermittent fever is produced by *animalculæ*, we find a cause which must have regular periods of action and of rest. This view, it appears to me, if well considered, must more nearly approximate to the desired explanation, than any heretofore suggested. And I will remark, that, whether this view, or speculation, as it may perhaps be called, has, or has not, a direct bearing on the question under consideration, it at least suggests a subject of much interest, the thorough investigation of which may throw some light, not only upon the present question, but upon others of much importance in medical science.

We have many things yet to learn on this subject, as well as others connected with the science of medicine. I regard this science as yet in its infancy—just emerging from the dark ages, wherein but little was known of the true nature of disease; a position which the results of medical practice hitherto fully sustain.

I come now to speak of the complications with which we frequently meet; a subject which, you perceive, is of more practical importance, in relation to treatment, than those which have last occupied our attention. Intermittent fever may be associated with almost every other form of disease to which humanity is subject. This announcement may surprise you, but I have scarcely met with a disease in my practice, whether organic or functional, which has not been occasionally complicated with intermittent fever. I shall have occasion hereafter to speak more fully on this subject, and shall not, therefore, discuss it at length in this place, but shall only enumerate a few of the complications referred to. The authorities dwell upon this subject at considerable length, but do not present it in exactly the same light that I shall hereafter.

I referred, in a previous Lecture, to one complication frequently met with in practice, and which may mislead you in your diagnosis: I mean gastro-intestinal inflammation, accompanied with great disturbance of the stomach and bowels. Though this condition should, as far as possible, be palliated, the main object should be to remove the real disease, which is the intermittent fever. This complication will generally be known by the symptoms accompanying a case of cholera morbus, as well as by the peculiar appearance of the tongue, which will exhibit, on the edges, if not over the whole surface, a very red fiery appearance, generally moist, but invariably red. There will, also, be much pain and tenderness in the epigastrium.

Congestion is another complication, or embarrassing association of intermittent fever. This is indicated by a dry tongue, a peculiar, dry and glassy appearance of the tongue and lips, and frequently a shining appearance of the face, and by a full bounding pulse; and, upon examination of the spleen and liver, these organs will be found to be engorged or distended. This, too, may be accompanied by nausea and an irritated state of the

bowels; but such is not usually the case. During the paroxysm all these symptoms may be present, and, after the decline of the fever, they may pass off, leaving the patient in a comfortable and comparatively healthy condition during the apyrexia. But if the attack is of the malignant character, with paroxysms occurring every day, or even every alternate day, your patient will not be able to be up at all. There will not be an entire cessation of the symptoms; the pulse will continue slightly excited, a little wiry and hard under the finger; and the skin, though softer than during the paroxysm, will be more dry and husky than in the interval of an ordinary intermittent fever. As soon as the intermission comes on, you should, in such a case, administer your remedies, to prevent another paroxysm. During this complication, there is not unfrequently a very low state of the system, which is very liable to be mistaken for typhoid fever, and under such circumstances, a correct history of the case is of the utmost importance. Without this you will lose many patients, whom, with proper investigation, you would succeed in saving; for in many of these cases, and especially in the South, the patient sinks under the second or third paroxysm and dies.

In some instances the paroxysms will be accompanied with delirium, and all the symptoms of inflammation of the brain, and here, too, you are in danger of committing a gross error, without careful diagnosis. For, instead of exhibiting the heroic treatment, indicated by cerebral inflammation, you should simply palliate, until the fever begins to decline, and then treat with a view to the periodic character of the case.

These are the most important complications of this disease likely to be encountered in its treatment. Always bear in mind the periodicity of the disease, however slightly developed, and, whatever its character or whatever its complication, you will usually succeed. Without attention to this characteristic, you will be liable to commit very grave mistakes.

Intermittent Fever is a disease from which no age, sex nor condition in life is exempt. Though it has been considered by some authorities as more peculiar to adult age, and to the male sex, I have found no difference in this respect. The fact that adult males are more frequently exposed to the inclemency of the

weather, and debilitated by excessive labor and fatigue, is fully sufficient to explain why they are more frequently attacked than others, if such be the fact. But I have seen the infant not a week old, and aged men and women tottering on the brink of the grave, suffering under this disease. I therefore consider that all ages, sexes and conditions are equally liable to its influence, under favorable circumstances. There are, I should remark, some peculiar constitutions that are almost or entirely exempt, while others, by a kind of natural idiosyncrasy, are decidedly predisposed to this disease; but such is the case, likewise, with other diseases. This fact was clearly exemplified during the prevalence of cholera in our country. Every person felt, to some extent, the influence of the epidemic: a degree of lassitude and enervation, with the peculiar effects upon the stomach and bowels. Still, there were many whose peculiar constitutional idiosyncrasies were such, that this influence was scarcely recognized, being able constantly to resist its encroachments; while others, exposed to the same cause, soon sunk under the disease. I have seen persons who had been for years exposed to small pox without being apparently affected by it, although unprotected, except by the resisting power bestowed upon them by nature. These, however, are exceptions to the general rule. The general principle to be recognized is, that when a person is exposed to the cause of disease, he will take it.

In regard to the effects of intermittent fever on the system, as shown by *post mortem* examinations, I deem it proper to make a few remarks. A great number of complications, as has been shown, are met with during the progress of this disease, and of course these will modify the post mortem appearances. These modifications should not, as has been too much the case, be regarded as necessary results of intermittent fever. An individual with a diseased *liver*, on being exposed to malaria, may take intermittent fever and die; and, on post mortem examination, extensive disease of the liver is discovered. Now, I ask if it should be taken for granted that the condition of the liver was caused by the fever, or even that the disease of the liver caused the febrile disease? Certainly, neither; they were merely concurrent diseases, influencing and modifying each other, it is true, but having no necessary connection in the relation of cause and effect.

There is, however, one organ upon which the influence of intermittent fever seems to fall with peculiar force: that is, the spleen. This is considered a settled fact. The existence of "ague cake," or enlargement of the spleen, is frequent in all classes of society. You rarely meet with an individual who has had a protracted attack of this disease, who has not more or less engorgement of the spleen; and this pathological result may be put down as a general rule. In some cases the enlargement is slight, while in others it is almost incredibly great. I have seen a case where it occupied the whole anterior portion of the abdomen, passing under the short ribs and liver. Then, again, I have seen cases where it entirely changed its position. I remember one case, in particular, where I found the spleen had slipped over into the right side, the patient himself being aware of the fact, and calling my attention to it. I had no difficulty in bringing it back to the proper locality, by placing the patient in a suitable position, applying a bandage around the body, and sustaining the parietes of the abdomen by a large strip of adhesive plaster, until, by proper treatment, the spleen was reduced to its natural size, and permanently retained.

Another most remarkable instance of the effect of this disease on the spleen, I will venture to relate. This was the case of a young lady whom I was called to see. The spleen had become enlarged, dislocated, and had fallen into the left groin, where it inflamed, suppurated, and was entirely discharged. When I opened the tumor, matter precisely the color of the spleen, and even some shreds of that organ, only partially decomposed, were discharged. This occurred about eight years ago, and but a short time since, I saw the young lady in Columbus, in as perfect and robust health as any one with a spleen. You may doubt the truth of this history, gentlemen, or at least that the spleen was really discharged in this manner, but all the attendant symptoms, together with the peculiar matter discharged, rendered it clear and unquestionable to my mind that such was the fact, and I would stake my reputation upon the position that a post mortem examination would demonstrate it. And if the young lady should die, and I have the opportunity, I shall prove the truth of what I have related.

Intermittent fever is supposed to have the power of eradicating other diseases: so much so, that persons with disease of the lungs are supposed to be relieved if they can have an attack of intermittent fever. This may occasionally be the case, but the influence is not as general as it has been claimed to be. I have great doubts whether permanent organic disease of the lungs has really ever been relieved by this cause. A change of climate may bring about a cure of pulmonary disease, and if this change of climate chance to produce, at the same time, an attack of intermittent fever, the cure is attributed to this latter circumstance.

In regard to the *cause* of intermittent fever, so much was said while we were speaking of malaria, that little needs to be added in this place. Still, as we are approaching the subject of treatment, and as the cause of all diseases, and especially of the one under consideration, must have an important bearing on our treatment, I deem it proper briefly to recur to the subject. The causes of disease are divided into *predisposing* and *exciting*, terms which explain themselves. Now, anything that has a tendency to deplete and debilitate the system will exert a predisposing influence in the production of the disease. In a debilitated condition of the system there is not so much resisting force, calculated to throw off the encroachments of disease, as in a vigorous constitution. Hence, excessive labor, fatigue, long fasting, debility from other diseases, or whatever weakens the nervous system, will exert a strong predisposing influence. In regard to the exciting cause, you have heard already all that it is necessary to say. I believe it to be the presence of a specific poison, known under the name of malaria; whether this depends on a peculiar state of the atmosphere, on animalculæ emanating from the decomposition of vegetable matter, or on some other unknown and equally obscure cause, it does not matter. The history, phenomena and attendant circumstances of this form of fever, all go to prove that it is the result of a specific malarial influence.

The *prognosis* of this disease is a subject that requires but few remarks. Generally, it may be considered decidedly favorable. Yet there are frequently symptoms of complication, which must always be taken into account, as they will, to a greater or less

extent, affect the prognosis. And bear in mind that your reputation as physicians always rests, to a considerable extent, upon the opinions you express on this point. If you are called to see a patient, with extensive congestion, with its attendant symptoms, you will, of course, see the necessity of prompt and efficient action, much more than in a case of simple intermittent fever; for, in the latter case your prognosis would be favorable, while in the former there is much less certainty. Still, even these malignant cases, which, if neglected or improperly treated, run speedily to a fatal termination, may generally be controlled and arrested by prompt and appropriate treatment. So that the presence of the malignant symptoms will rather modify your views of the treatment to be employed, than affect your prognosis of the final result. Always remember that the more severe the symptoms, and the more complicated the disease, the greater the necessity for promptitude and efficiency in your efforts to arrest it.

It is scarcely necessary to say anything here on the subject of *diagnosis*, in view of the full discussion of the symptoms of this disease and its complications to which you listened during the last lecture. In the simple form of the disease there can be no mistake; the patient himself, if intelligent, will generally recognize it. In the obscure, masked, and complicated forms, there is more perplexity, but by recurring to what has been said upon those subjects, you will generally have little difficulty. One distinguishing mark will always characterize the malarial disease, in every form and under all modifications, and that is, its *periodicity*.

The **TREATMENT** of intermittent fever may be divided into *palliative* and *radical*. The palliative treatment depends on the stage in which you prescribe; I shall therefore briefly give you that which is appropriate for each stage. In a former lecture, it was stated that almost every disease, and especially fever, has its forming stage: and in this stage, by a proper course of treatment, with care in regard to diet and exposure, the disease may be warded off without being permitted to develop itself. The business of the physician consists as much in preventing as in curing disease: and you will often be called upon, by families that are careful of their health, to prescribe in the early symptoms of

approaching fever. A mild aperient, such as the anti-dyspeptic pills, given so as to produce a slight action of the bowels, will generally be sufficient. But if it is complicated with torpidity of the liver, I would recommend small doses of podophyllin and leptandrin,—not, however, with a view to act as a purge, but rather as an alterative. The dose may be, say, Podophyllin gr. $\frac{1}{8}$, Leptandrin gr. $\frac{1}{2}$, given at bed time two or three evenings. It is sometimes well to give a general tonic, and for this purpose, boneset (*Eupatorium Perfoliatum*), is as good an agent, perhaps, as you can administer. This will frequently act as an aperient, though not reliable as such, for all constitutions.

In the cold stage, as a general rule, you should simply make the patient as comfortable as possible for the time being. In cases, however, where there are very violent symptoms, with pain in the back, and the head very hot, more active measures are required. Apply sinapisms to the whole length of the spine and hot bricks to the feet. Bathe the head with warm water, and fan it, so as to cool it by evaporation.

The hot stage, also, requires but little treatment. Bathe the entire surface with warm or tepid water, or water and whisky. This shortens the paroxysm, and relieves the patient of much suffering. Where there is vomiting and purging, as occurs in the complications of the gastro-intestinal irritation with this disease, such treatment should be employed as is indicated by other cases of cholera morbus. As good a remedy as you can use in this case is our neutralizing physic, in small doses, say a teaspoonful every half hour, and at the same time apply sinapisms over the stomach. If this do not relieve, give from one-twelfth to one-eighth of a grain of morphine. This treatment you will frequently find to relieve your patient of much pain and suffering.

LECTURE VI.

INTERMITTENT FEVER—CONTINUED.

Treatment continued—Palliatives—How Varied—Restlessness—Case Cited—Determination to Head—Doubtful Cases—Case Cited—Radical Treatment—General Directions—Remedies—Former Practice—Evacuants—Dr. Morrow's Practice—Reasons for Differing—Popular Remedies—Case Cited—Treatment for Vomiting and Purging—For Nervous Irritation—Protracted Cases—Additional Means—Tonics—Cinchona—Iron—Remarks on Various Remedies—Quotation from Dr. Bell—Old School Doctrines—Differences between Authors—Quotations from Dr. Bell—Remarks—Quotation from Dr. Wood—Remarks.

At the expiration of my hour yesterday, I was speaking of the palliative treatment as required in the various stages of intermittent fever. There are other suggestions which I desire to make before proceeding to the radical treatment.

The object of the *palliative* treatment is, as the term implies, to modify the present symptoms, ameliorate the sufferings of the patient, and shorten the paroxysm. Now in addition to the treatment given yesterday, as appropriate to the hot stage, other measures, under different circumstances, may be employed with advantage. If you are called to a patient in the hot stage, and find him very restless, complaining of much pain in his back and head, and exhibiting evidence of general uneasiness by constantly turning from side to side; you will find nothing so prompt and efficient as an opiate. Our diaphoretic powder, in ten grain doses, the sudorific tincture in doses of a drachm, or, if preferred, the eighth of a grain of morphine, may be administered. I very well

recollect a case, where an old school physician had been in attendance for two or three days. When he found the patient in the condition just described, he proposed to bleed him; but the friends would not submit to it. This offended him and he immediately left the case. I was then called in and found the patient still suffering under the symptoms above mentioned. I prescribed an eighth of a grain of morphine to be taken at once, and another if the first should not produce the desired effect; had sinapisms applied to the back and extremities, and warm bathing to the head to cool it by evaporation. As I returned, I met the physician who had first seen the case, and mentioned that I had been called to see the patient. "Well," said he, "did you bleed him?" I replied in the negative. "Then he will die," he said, and passed on. I saw the patient again the next evening, and found him in a gentle perspiration and all the symptoms of active febrile excitement gone. I then prescribed the radical treatment which will be presented to you soon, and he had not another paroxysm.

I have seen other cases where the determination to the head was so great as to produce partial coma, with coldness in the extremities, even during the hot stage. In such cases, should the active revulsive measures, generally employed for congestion of the brain, prove ineffectual, I apply ligatures around the limbs, to interrupt the venous circulation, and thus retain the blood in the extremities. But let me caution you in applying the ligatures, to be careful not to have them too tight, so as to compress the arteries as well as the veins, lest, by cutting off the circulation entirely from the extremities, you defeat your object, and do serious harm. The pulse will be your criterion in this respect. The application of ligatures is an effectual means of diverting the circulation from the head and trunk, to the extremities.

There are cases to which you will be called, of the history of which you can learn but little. One of this description, I remember particularly, as occurring in my own practice. I found the patient in a deeply comatose condition, entirely insensible, so much so that I could not arouse him to let me see his tongue. By pressing down his chin, however, I could see that the tongue was moist, but pallid and coated. The pulse was small and thread like, beating at the rate of 120 to 130 per minute.

There was a collapsed appearance of the capillaries, and the whole body was covered with a clammy sweat. I was unable to ascertain whether it was his first or second paroxysm, or whether he had ever been sick before; but I was so well convinced from the season of the year, and the location in a malarious district, of the urgency of the case, that I permitted no time to be lost. Therefore, without waiting for the paroxysm to subside, I commenced giving him quinine and whisky, and in twelve hours administered 20 grains of quinine and a pint of whisky. This entirely relieved him and he had no return of the paroxysm. I found the patient, next day, perfectly conscious, his pulse had fallen to 80 per minute, and not a symptom of disease followed. I mention these cases in this connection, merely to show how varied are the aspects assumed by disease, and how impracticable it is to furnish fixed rules for even the palliative treatment. We can only rely upon our own judgment, guided by general principles.

We come now to speak of the *radical* treatment, or that which is relied upon to effect a permanent cure. Ordinarily, it is proper to permit the paroxysm in a measure to subside before using the remedies of which I am about to speak. But in very violent and rapid cases of the quotidian type, where the intermission is short, it is necessary to commence at once. I do not regard the fever in these cases as a contra-indicating condition, but come in at once with antiperiodic treatment. Perhaps the life of the patient may depend upon the arrest of the disease before another paroxysm, and we must take advantage of all the time we have to accomplish this object. Generally, however, we palliate, as heretofore taught, during the febrile stage, and then exhibit our periodic treatment. My custom is to administer sulphate of quinine and prussiate of iron, of each three grains, mixed, once every two hours, until the next period; and if there is reason to fear that the time is too short to accomplish the object, I usually administer a dose of our sudorific tincture, one hour before the anticipated chill. This was an early practice with me, and in urgent cases I still pursue it, having found it successful in preventing the next paroxysm in almost every case. This tincture may indeed be given twice, and followed by some warm diaphoretic tea, and hot bricks to the feet. These measures tend to produce

perspiration, and lessen the nervous irritability upon which the recurrence of the paroxysm very much depends. I have seen many cases arrested also by the use of our diaphoretic powder, an hour before the chill was expected. During my early experience, my course was about as follows: First, if time permitted, I gave a cathartic, then quinine and iron, or quinine alone, and followed this by the sudorific tincture or powder, in the manner just stated. This mode of treatment has proved successful in arresting almost every case, and it is a practice with which I have never had cause to be dissatisfied, although, as I believe, subsequent experience has enabled me to improve upon it in some measure.

There are cases, however, where the patient desires to keep out of bed and attend to his business during the intermission; and I have found that mild cases may be so treated as to permit this, and with complete success. My present practice in such cases is to give equal parts of quinine, and prussiate of iron, once every two hours, in such doses that 24 grains of the mixture may be taken during the intermission. I do not now even administer evacuants in ordinary cases of intermittent fever, for I do not regard them as at all necessary, in view of the true character of the disease. It may be important, under certain circumstances, especially in complications, to employ evacuants, but so far as regards the disease itself which we are now considering, they are not a necessary part of the treatment. If there is an accumulation of vitiated matter in the alimentary canal, and time will permit, I administer a cathartic, or perhaps an emetic, or both; not however as indicated by intermittent fever, but to correct this attendant condition. But in cases where time is important, I look upon it as madness to take such a course. Let the antiperiodic remedies be exhibited at once, and, contrary to your expectation, if your information on the subject has been derived from the ordinary books alone, you will find that the bowels will move sufficiently when the system is relieved of the malarial disease. I have seen this fact illustrated in other kinds of fever as well as in intermittent; and in many cases, where cathartics have failed to secure evacuations, I have seen healthy action of the bowels follow the administration of the antiperiodic remedies; not because of any cathartic influence exerted by them, but merely because they destroy the malarial

poison which oppresses the nervous system, and thus enable the organs to resume their healthy functions.

I have seen cases of the quartan type where from the attendant symptoms, I deemed it advisable to administer a cathartic with the antiperiodic remedies. For instance, where I find the eyes yellow, and the skin pale or sallow, indicating torpor of the liver, I give the eighth of a grain of podophyllin twice a day and continue it two or three days after the paroxysms are arrested, or till this biliary derangement is relieved.

My much deplored friend, Dr. MORROW, pursued the practice of thorough evacuations, previous to the administration of antiperiodic agents. This was, to some extent, as before stated, my practice, also, some years ago, but from later experience, in regions where intermittent prevails to a great extent, where it is the leading and most common autumnal disease, I have been led (by necessity at first, and subsequently by the satisfactory results of the course) to adopt a different mode of treatment. His custom was to follow the evacuant by a prescription which has been highly recommended, composed of sulphate of quinine 30 grains, and supertartrate of potassa 1 ounce, dissolved in one pint of brandy. This he gave in table-spoonful doses every two hours during the intermission, until within two hours of the next chill, when he gave two table-spoonful. He considered this course safe and efficient; but on the extended alluvial bottoms of the Scioto, and in many other parts of this Western country, where malarial influence prevails to an alarming extent, at times, you will find it unsafe to adopt a course of treatment requiring so much time, lest your patients should slip through your hands before your remedies can arrest the disease. In mild cases, almost any ordinary treatment will arrest intermittent fever. Even a powerful mental excitement will sometimes break up the disease. A warm infusion of some mild diaphoretic herb has often been found all-sufficient, and we often hear of some simple remedy of this kind as being "an infallible cure for ague." I well remember an incident in point: A gentleman removed from Licking county to the Scioto bottom, and came, in a short time, to consult me in relation to one of his children that was laboring under another form of disease. During our conversation he informed me that

he had a remedy for chills and fever which never failed to cure. I, of course, inquired what it was, and he said it was the root of the vervain. I suggested that he would, probably, soon have an opportunity of testing the unfailing efficacy of his specific; and, surely enough, he soon found occasion to give it a fair trial, but it failed to overcome the powerful malarial influence of his new place of abode, and he came to me for medicine for his family.

In those severe cases of vomiting and purging, during both the cold and the hot stage, you will find it important to adopt the most prompt and efficient mode of treatment, as a repetition of the paroxysm may wear out the patient; or, otherwise, the disease is likely to run into congestion or typhus fever. I have never found any difficulty in using the anti-periodic remedies, if the stomach will retain them, and if not, I administer the quinine by enema, which will answer the purpose. It has been recommended by some to apply a blister over the epigastrium, but I have not found this necessary.

In cases of great nervous irritability, I have found the valerianate of quinine preferable to the sulphate. This should be administered in grain doses once every two hours; and in great irritability, especially of the stomach, the addition of a little morphine has been found very serviceable.

An agent has recently been introduced at the South, as a remedy of remarkable efficiency for intermittent fever; but whether it is really such or not, is not yet satisfactorily determined. I refer to the yellow jasmine, (*gelseminum sempervirens*). Its properties are said to have been accidentally discovered by a Mr. Smead, a planter of Mississippi. From what I have heard respecting it, there seems little reason to doubt that it possesses valuable anti-periodic properties; but that it will prove a complete substitute for quinine, as some believe, is, I think, quite improbable. It is said that where it is used, quinine is often combined with it so freely, as to justify the suspicion that the cure might properly be attributed to the quinine instead of the new remedy.

You will often meet with protracted cases of intermittent fever, where, though quinine will arrest the paroxysms, it will not be as efficient in preventing a return, as will some other preparation of the Peruvian bark. I have, in such cases, administered the

chenoidine, which acts with equal certainty, in debilitated constitutions, in arresting the paroxysms, and will, with greater certainty prevent a return. This may be given in four grain doses once in two hours. You may occasionally meet with a long protracted case, such as I encountered some time ago, where even the quinine and iron will fail to arrest the paroxysm. In the case I refer to, the individual had been under the influence of intermittent fever for six months, and no means that had been used succeeded in arresting the disease. I found that there was an almost entire torpor of the stomach. He was unable to digest the simplest food; and from being a healthy, vigorous man, was reduced to an emaciated condition. I administered an emetic, and he threw up a large quantity of tough viscid mucus. The quinine and iron was then given; a free perspiration soon broke out, and the anticipated paroxysm was prevented. I then put him under the influence of an efficient tonic, by administering Bone's bitters, two or three times a day, and the disease has not since returned.

I have been in the habit, where decided tonics were indicated, of employing the precipitated extract of cinchona, which consists of quinine and some of the more tonic properties of the bark combined. It will be remembered that Peruvian bark possesses a number of proximate principles. The tonic property of the bark does not reside in the quinine, but is found in another principle called cinchonin. This principle, and the precipitated extract, contain a large proportion of the tonic property; and where you wish to produce a tonic effect, they are preferable to quinine. Iron exerts a beneficial effect when combined with quinine, by its action on the blood, and on the digestive organs. It is especially indicated in those pale, debilitated conditions, arising from the deficiency of the red corpuscles of the blood, of which iron is a constituent.

It is quite "fashionable" in domestic practice to recommend brandy as a remedy in this disease, but it is a dangerous agent; for, unless it arrests the paroxysm, (and it is by no means reliable), it greatly aggravates the fever, and subjects the patient to great suffering. As I have already remarked, mild cases may be arrested by very simple means, and sometimes brandy will

succeed, but if not, the paroxysm will be much more violent, while nothing will be gained.

I have, in some cases, combined the *piperin* with quinine, in torpor of the stomach, and can recommend it with confidence, not as an anti-periodic, but as a stimulant and tonic.

I was recently told by a friend in whom I have great confidence, of another remedy, which, he says, he has found prompt and efficient in arresting the paroxysm of this disease ; and since it is entirely new and unheard of as a remedy in such cases, I refer to it. It is the *plantago majus*, or common red plantain. The tincture in brandy or whisky is recommended, to be given in table-spoonful doses once in two hours during the intermission. I will, however, remark here, that although this may be successful in mild cases, I have no confidence in its efficacy in those of a severe character. Still, these simple means are valuable, and should be known to the physician, as they enable him to vary or corroborate his treatment when desirable. Besides, there are many persons who have a strong prejudice against quinine, and if the disease is not too grave to trust them, it is often well to prescribe some of these less efficient agents.

When there is a complication of congestion and engorgement of the liver, which does not subside with the interruption of the intermittent fever, I treat it as I would the same disease of the liver under other circumstances. I prescribe in such cases small doses of podophyllin and leptandrin. I find the leptandrin to add much to the efficiency of the podophyllin, by acting on the muscular coat of the bowels, and preventing the griping which is sometimes produced by the latter when given alone. Engorgement of the spleen may be treated in the same manner. In short, all complications which may persist after the subsidence of the periodic fever, are to be treated on general principles, just as if occurring as primary affections.

Many other remedies have been recommended in intermittent, and among them Fowler's solution (of arsenic) has been spoken of with the greatest confidence. Respecting this article I will quote an extract from Dr. Bell's Notes on Stoke's Practice of Medicine ; although, if I am not much mistaken, Dr. Bell recommended Fowler's solution for intermittent fever in the Commer-

cial Hospital last winter. In the work just referred to, (Stoke's and Bell's Practice, 1840, pages 449 and 450), he says:

"A review of the effects of arsenic in intermittent fever, that is, on those laboring under the disease who have taken it, would, on calm and dispassionate reflection, induce us to wish that its use had never been proposed. The amount of mischief which it has produced must have been excessively great, and exceeding the good that it has been alleged to do, in the same proportion in which cases, where it has been given in ignorance of its operation and the state of the system, have exceeded those where it was administered with all the reservations and restrictions that could be suggested by cautious observation. We are told that it has cured when the bark has failed; but I think it has been sufficiently shown that if the bark fails we have other duties to perform towards our patient than hunting out fresh tonics. When thus unsuccessful, we shall find the stomach irritated, and perhaps inclined to phlogosis, or there is a chronic hepatitis and a tendency to dropsical effusions. Now, most assuredly, arsenic, even if it arrest the chill, is not the appropriate remedy in these circumstances. If we persist in giving it we do so at the peril of our patients, to whom we stand fearfully responsible for the chronic gastritis thus entailed upon them.

"Three of the most obstinate cases of disease which were presented to my notice during last year, were of persons who had used Fowler's solution for the cure of intermittent fever. One was a young man from the country, who had been cured of the chills by this medicine, but who suffered greatly when I saw him from pain and heat of the stomach, which had supervened since he began using the solution. Two bleedings and a reduced diet made him more comfortable; but I was not permitted to see him entirely recovered, in consequence of his return to the country. The second was a young female, who, when I saw her, was greatly distressed by irritability of the stomach, with fixed pain and frequent vomiting; her pulse was hard and active; the appearance of the complexion and other symptoms induced a belief that she labored also under hepatic disease. Upwards of two months elapsed before her digestive powers could allow of her using any food at all stimulating. During that period she

was frequently bled from the arm and leeches over the epigastrium. The blue pill was administered, and after a while the sulphate of quinine; but both these were soon omitted, as I found the state of her stomach aggravated by their use, and I was content, at last, to rely on depletion, general and local, as above, and occasionally a mild laxative and diluents. Under this treatment she so far recovered as to justify the use, once more, of the quinine; by which, finally, the disease lost its periodical character, and strength and health followed. The third case, also a female, was characterized by nearly the same symptoms, but they were of less duration, and were finally removed by several bleedings, and by the use of the quinine.

“It would be well for us to bear in mind that there are two modes of poisoning. The one sudden and acute, resorted to in moments of temporary insanity or impious despair, for the purposes of self-destruction, or with malice prepense to take away the life of a neighbor; the other is a slower process, practiced by empirics, when they persuade the ignorant and credulous to swallow their nostrums, and, shall we add, by regular physicians, when they direct, without due deliberation, their patients to use arsenic, corrosive sublimate, and some other half dozen of heretical medicines.”

There exists a great diversity of opinion among authors in regard to the treatment of intermittent fever, as evidences of which fact, I refer to the writings of Dr. Bell, in the work from which we have just quoted, and those of Dr. Wood, Professor of Theory and Practice in the University of Pennsylvania,—for between these two authors there is a very marked and palpable difference. From the quotations which will be given, you will discover that Dr. Bell adheres to the old, superannuated doctrine of the necessity of depletion as a leading measure in the treatment of intermittents; that the “tongue must be moist and but little loaded,” before we can, with “prospect of entire success, give the bark or its salts.” On the other hand, Dr. Wood, although still, in my view, a step behind the truth, is evidently on the verge of the very doctrine which I have been teaching. True, he says, “first the bowels should be thoroughly evacuated, and then sulphate of quinine should be given freely.” But further on we

find the remark, that "whenever the intermission is complete," "quinia may be given without hesitation;" and he even says, in speaking of inflammation attended with typhoid symptoms, as "when typhoid pneumonia supervenes upon, or becomes complicated with intermittent fever, it will be proper not to wait for a distinct intermission; but administer the quinia as soon as the nature of the disease is ascertained. I have seen the happiest effects result from this treatment; and have been informed by physicians residing in miasmatic regions, that they habitually employ it with great advantage. Not only is the intermittent interrupted, but *the inflammation itself puts on a more favorable character* under its influence." Now, had Dr. Wood taken the hint from the plain fact just quoted, and made the unhesitating administration of anti-periodic remedies the general rule, wherever the "nature of the disease is ascertained," and considered the cases where thorough evacuation is necessary exceptions to the rule, he and I would not widely differ on this subject. But I will give you the quotations at large, that you may see whether or not I misrepresent the distinguished authors to whom I have referred. I now read from Stokes and Bell's Practice, second American edition, pages 444 and 445.

"The call for moderating excessive excitement is not less imperative here," (in treatment of intermittent fever,) than in other maladies, distinguished by similar symptoms, however variously named. We are well aware of the general principle on these occasions, that the risk of subsequent languor and engorgement is greater, if the excitement be allowed to wear itself out by our abstaining from those means calculated to moderate it.

"In the case before us, we have, superadded to gastric irritation of the stomach, a morbidly exalted action of the other great viscera. Of course, in addition to the indications furnished by the former, we have those supplied by the latter, to direct us to the use of the lancet and the application of cold. In fact, the treatment here is identical with that in every febrile paroxysm of any intensity, whether it be of regular or spurious and malignant, intermittent or remittent, yellow or bilious. It is true that a temporary crisis will generally take place in regular intermittents, without any interference on the part of the physician; but every

paroxysm, especially if neglected or mismanaged, predisposes the subject of it to complications and aggravations, at each successive return; and the stomach, liver, and head, from being periodically affected, are after a while permanent sufferers.

“Blood-letting in the hot stage of intermittent fever, thus pointed out by inductive reasoning, has been proved by experience to be on many occasions decidedly beneficial. It is now many years since, whilst yet a student in Virginia, it became my duty to see and occasionally prescribe for a young man of a thin, spare habit of body, who had been much reduced by repeated attacks of intermittent fever. Bark and arsenic had been administered in vain. Influenced by the recommendation of Senac, whose work on intermitting and remitting fevers I had just perused, I opened a vein in the arm of my patient during the next hot fit, and took away a pint of blood. The relief was immediate; the force of the paroxysm soon subsided; the apyrexia was complete; and a few doses of bark were sufficient to prevent the next fit. He speedily recovered his health and strength, and remained clear of intermittent fever. From that time to the present, I have not hesitated to use the lancet in every case of periodical fever, in which either the apyrexia was not so complete as to leave the patient entirely clear of all gastric and cerebral distress, or in which the paroxysms had been of frequent recurrence, and untractable under the use of the bark. I have usually preferred, when the choice was in my power, bleeding during the hot stage to doing it in the apyrexia; but the experience of every additional season convinces me that in this latter state, also, the employment of the lancet will realize all our best hopes.”

Passing over his remarks on cold bathing, I quote a paragraph on page 446:

“Having by these means brought our patient through the cold and hot stages, the sweating will seldom be excessive or enfeebling, and the succeeding period will more probably be, not in name, but in fact, that of apyrexia. Should it prove such, that is, should the tongue be moist and but little loaded, and the skin soft, we can then, with every prospect of success, give the bark or its salts in full doses at short intervals, until in the revolution of time the epoch arrives at which the next paroxysm would probably come on.”

As an illustration of Dr. Bell's views and treatment, I will further quote from the same work, commencing on page 450 :

"My experience of blood-letting in the cold stage of fever is recorded in the following terms :

"In two cases in which I adopted this practice the result was not of such a favorable nature. One was evidently benefited ; but neither in this nor the other was I dispensed from the necessity of subsequent bleeding before the disease was arrested.

"To these I ought to add a third, which, from its rare occurrence, and the formidable nature of the symptoms, merits a more particular notice. It was of a young mulatto man, who had been confined to his bed for three weeks by gastric remittent fever. The paroxysms came on at irregular intervals, and were always marked by a frequent and rather full pulse, acrid heat of the skin, especially over the abdomen, and a burning thirst. Frequent bleedings from the arm and cupping over the abdomen had been practiced ; purgatives of a saline and mercurial character were occasionally administered, which gave some relief at the moment, but always left the stomach and abdomen more tender to pressure, and the skin hotter to the touch. During nearly the whole time the tongue was loaded in the middle with a whitish-yellow coat, while its borders and tip were red and shining. After the expiration of the above time convalescence seemed about to be established ; the pulse was nearer a natural standard, thirst less urgent, the temperature of the skin, except over the epigastrium, of an ordinary nature. Pressure on the abdomen rendered the pulsations of the aorta very perceptible. The patient gained very little strength, although he was allowed light animal broth and farinaceous food. Visited in the afternoon of September 17th, of last year (1828). I found him in great apathy, with an inclination to doze. The pulse was not materially altered, nor was there any new symptom. A blister was directed to the back of the neck, and a laxative of rhubarb and magnesia at bed-time. At 11 o'clock, p. m., I was sent for in great haste, and on my arrival found the patient in a state of complete coma, utterly insensible to all objects of sight, sound, and touch ; his limbs, at first extended, remained in whatever position they were placed ; the pulse was barely perceptible, and the breathing very

slow. It was impossible to make him swallow any thing, or to elicit from him the slightest evidence of consciousness. On applying my hand to the epigastrium, I could feel the abdominal aorta beat with considerable force ; so also did the carotids. The contractions of the heart were frequent and laborious. The blister had been put on, but no medicine taken. Sixty leeches were now applied over the epigastrium and sinapisms to the extremities. After the leeches had begun to fill, the pulse lost somewhat of its extreme tenuity, and by the time they were detached, it had regained its natural volume, was soft and easily compressible. The patient at this time began to move his eyes and the muscles of his mouth and face ; he turned a little towards one side, yawned and stretched himself. The extremities were still cold and unaffected by the sinapisms. Before all the leeches were removed, the skin became moist in places ; and finally a sweat covered the face, trunk, and limbs, with the exception of the hands and feet. Enemata of tepid water were administered at different times through the night. In the morning, though languid, he was partially sitting up in bed, by leaning on his elbow, helping himself to some light nutriment. In the afternoon of this day he experienced some rigors, which disappeared in the evening in moisture on the skin.

“ On the evening of the following day, 19th, by eight o’clock, he was in nearly the same state as on the 17th, being completely comatose. Cups, in large numbers, were applied to the temples, and over the abdomen, so as to detract about ten ounces of blood. The effect was most salutary, and the recovery even more prompt than from the first attack. Enemata of cold water were given on the present occasion.

“ An examination of the symptoms of the case on the morning of the 20th, as presented by the pulse and skin, seemed to justify the use of the quinine, from which the furred and chapped tongue on the preceding days had deterred me. A minute inspection of this organ now showed me that under this dry and cracked coat it was pale, and rather thicker than natural. This appearance was readily recognizable by looking at the tip and sides of the tongue. A solution of the sulphate of quinine in water, ten grains to the ounce of fluid, was directed. Of this a teaspoonful

was taken every hour until the afternoon. There was then a very slight exacerbation. The medicine was resumed on the following day, and continued for several days. The patient was thenceforward clear of paroxysmal attacks, and gradually and regularly regained his strength and health.

“Here was an extreme case, in which the coma, evidently a substitute for the cold stage of intermittent fever, was relieved on both occasions by a free abstraction of blood. The subsequent reaction and distress were very inconsiderable, and did not, on either occasion, prevent the patient from sleeping quietly during the remainder of the night.”

I cannot dismiss Dr. Bell's views, without subjoining a few remarks on the case just presented. It is, to my mind, perfectly clear, that the comatose condition was, as Dr. Bell says, “a substitute for the cold stage;” and I am also confident that this condition would have passed off as certainly and as naturally as does the cold stage generally in this disease; the treatment instituted, and to which Dr. B. ascribes the recovery from these attacks of coma, may, as a revulsive or counter-irritating influence, have done something to hasten the reaction, though I am sure that the loss of blood, so far as it affected the general circulation, was any thing but “salutary.” Fortunately his laxative was not given; and the prescription does not appear to have been repeated in the next paroxysm.

Now the great error in this case was in relying upon treatment which, at best, could only palliate, and which, if persisted in, would have permitted the patient to sink beyond recovery, while the physician regarded the “furred and chapped tongue” as contra-indicating the only remedy that could reach the case. In justice to the doctor I will add, that he afterwards evidently became dissatisfied with his treatment. For having seen a case of epilepsy where, from a misunderstanding of his directions, “twenty grains of this salt of quinine were given in the early part of a day, without any perceptible increase of excitement, heat, thirst, or accelerated pulse,” he seems to have thought a different course worth an experiment, at least. He says: “Were I to meet with a similar case of congestive or malignant intermittent, I should give *five grains of the sulphate of quinine at once, and repeat*

the dose in two hours." This circumstance does not, however, seem to suggest to him any modification of his treatment of intermittents generally.

I will now present the views of Dr. Wood. Speaking of treatment during the intermission, he says (see Wood's Practice of Medicine, second edition, vol. I, page 245, &c.): "The course to be pursued is happily as simple as it is effectual. First, the bowels should be thoroughly evacuated, and then sulphate of quinia should be given freely. Formerly, it was customary to administer an emetic; but this practice is unnecessary, disagreeable, and sometimes mischievous, and has gone out of use. The only condition in which vomiting is clearly indicated, is where the stomach is loaded with undigested food, or oppressed and irritated by acrid accumulations. For the cathartic effect, calomel, as a general rule, is preferable to all others of the class. It not only evacuates the bowels, but unloads the congested liver. It should generally be combined, for adults, with some other purgative, to insure its action. Three or four of the compound cathartic pills may be employed, or from five to fifteen grains of calomel, with a proportionate quantity of rhubarb, jalap, scammony, or compound extract of colocynth; or the dose of calomel may be given alone, and followed in six hours by a dose of sulphate of magnesia or castor oil. When the apyrexia is very short, so as not to allow time for the action of a purgative, and the subsequent administration of quinia, the calomel may be given during the paroxysm. In mild cases of ague, with no signs of biliary disorder or hepatic congestion, it will be sufficient to evacuate the bowels thoroughly by sulphate of magnesia or other saline cathartics, or by the infusion of senna with epsom salts.

"As soon as possible after the bowels have been evacuated, it will be proper to commence with Peruvian bark, or one of its preparations. Of these, beyond comparison the most valuable is sulphate of quinia."

We pass over his remarks on the various salts and preparations of bark, and on their mode of action, and give another quotation, commencing on page 246:

"There has been, and continues to be, a difference of opinion upon the point whether quinia should be given in complicated

intermittents during the continuance of any inflammation which may be associated with it. On the one side, it is maintained that the quinia must, by its stimulating properties, aggravate the inflammation; while, in consequence of the constant irritation which this sustains in the system, it will fail to subdue the paroxysmal disease. On the other side, it is answered, that quinia is capable, as proved by the result of innumerable trials, of arresting the intermittent paroxysms under the circumstances mentioned; that the stimulus of the paroxysmal pyrexia is infinitely greater, and infinitely more likely to support and aggravate the inflammation than that of quinia; and that, consequently, the sooner this medicine is administered the better. According to the former opinion, the inflammation should be first subdued by the lancet, cupping, &c., after which, recourse may be had to the anti-periodic remedy; according to the latter, the paroxysmal disease should be immediately arrested, and, then, if the inflammation shall not cease at the same time, it can be treated in the ordinary manner.

“There is a simple rule which, I think, will serve the practitioner as a sufficient guide in relation to this disputed point. Whenever the intermission is complete; in other words, when it is quite exempt from fever, quinia may be given without hesitation, if the stomach will support it. If any existing inflammation is of so low a grade as not to induce symptomatic fever, it will scarcely oppose an obstacle to the anti-periodic action of quinia, and it will be much more likely to yield after the paroxysms have ceased. Indeed, such inflammation is probably often supported by, if it do not originate in, the fever of the paroxysm. When the inflammation is so extensive or severe as to induce fever, though the disease may have the paroxysmal form, yet it will present rather the aspect of a remittent than an intermittent, as there will be fever steadily throughout the interval. In such cases, the use of quinia should be preceded by depletion, and other measures calculated to reduce the inflammation; but as soon as a distinct intermission has been obtained, there should be no longer any delay in resorting to the anti-periodic remedy. When the inflammation is attended with typhoid symptoms, as not unfrequently happens in the Southern and Western portions of this country, especially in the winter, when typhoid pneumonia supervenes upon

or becomes complicated with intermittent fever, it will be proper not to wait for a distinct intermission, but to administer the quinia as soon as the nature of the disease is clearly ascertained."

Precisely what Dr. Wood says about emetics as a customary mode of treatment, may be applied, and with equal force, to the cathartic treatment, as indiscriminately employed in intermittent fever—it "is unnecessary, disagreeable, and sometimes mischievous." "The only condition in which a cathartic is clearly indicated," is when the alimentary canal "is loaded with undigested food, or oppressed and irritated by acrid accumulations;" and even this condition should not be regarded as an obstacle to the exhibition of the anti-periodic where time is at all important; for, as has been before remarked, the paroxysms may be arrested in nearly every case without any preparatory medication; and, then, if the bowels do not spontaneously assume their functions the appropriate treatment may be employed to correct whatever derangement may remain. It is true, that emetics are more offensive to the patient, generally, and their administration attended with more difficulty; and, consequently, cathartics are generally employed in preference. Still, were I impressed with the importance, in a particular case, of removing acrid accumulations from the stomach before treating the intermittent, I should certainly prefer an emetic to a cathartic. The emetic is more prompt in its action, is less likely to produce irritation or debility; and by the peculiar mode of its operation, tends more to arouse the organs and equalize the circulation than purgatives do. But the cases in which either should be employed are very few, and form even rare exceptions to the general rule. Indeed, my experience and observation go to prove that purgatives generally exert an injurious influence in this disease, by wasting time, weakening the patient, irritating the bowels, and tending to transform the intermittent into the remittent form of fever, and thence it too often passes into a low grade of typhus. I have seen many cases take the course just indicated, terminating fatally, or at best barely recovering from the very jaws of death, which would have been promptly relieved at first by the unhesitating and liberal use of the proper anti-periodic remedy, without evacuation or depletion by any mode.

The doctrine that complications require preliminary treatment before the anti-periodic remedy can be safely employed, has, I think, been already refuted. And I now reiterate that I have given it in hundreds of cases where inflammation, congestion and other complications were evidently present, and have never seen the least unpleasant results follow ; but have uniformly found the symptoms of inflammation or other disorders very essentially modified by the interruption of the paroxysmal disease. And, since so prominent an author as Dr. Wood has ventured to recommend the true course in one complication, that of typhoid pneumonia, I cannot but hope the profession is about to open its eyes and see this disease and its treatment in a true light.

LECTURE VII.

INTERMITTENT FEVER—CONTINUED.

Treatment continued—Neuralgic cases—Sun Pain—Local Inflammations—Remarks on Treatment—Doctrine of Books set aside—Periodic Symptoms in other disease—Scarletina—Croup, &c.—Prophylactic Treatment—Bone's Bitters: Recipe—Substitute: Recipe—Cholagogue Pill: Recipe—General Directions—Concluding Remarks. Remittent Fever—Synonymes—Localities—Seasons—Periodicity—Differs from Intermittent—Differences of Susceptibility—Forming Stage—Chill—Fever—Remission—Modifications—Complications—Congestion of Liver—Biliary Derangement—Gastric Disorders—Variations of Pulse.

In discussing the character and pathology of intermittent fever, we described several modifications frequently met with in practice. These modifications become especially interesting from the peculiarity of treatment some of them are found to require. I refer more particularly, now, to those varieties of "masked ague," or neuralgia, commonly called "sun pains."

These neuralgic forms of intermittent disease are found not to yield as readily to the same treatment as does ordinary intermittent fever. They require more of antiperiodic medicine to arrest them, and it is often necessary also to combine with it some opiate, for the purpose of securing more prompt and perfect relief from the intolerable pain and distress, than can be expected from the quinine and iron alone. I have therefore adopted the practice of administering quinine and iron in somewhat larger doses, for intermittent neuralgia, than in intermittent fever, and with the last dose, or about two hours before the time for the apprehended par-

oxysm, give morphine, or our common sudorific tincture, so as to get the patient under the opiate influence before the time when the pain might have been expected to commence. This is the treatment upon which I have relied, and with uniform success.

The other varieties of masked ague are generally amenable to the usual antiperiodic treatment. Many cases are encountered in practice, presenting all the characteristics of local inflammation, which will yield with remarkable promptness to the remedies proper for intermittent fever. And, as stated in a former lecture, I have seen cases cured in this way, after they had resisted all the depletory and antiphlogistic remedies of old school practice. Indeed, the effect of this antiperiodic treatment is so very striking, as to astonish you if you are not familiar with it. You are, for instance, requested to prescribe for a case of acute ophthalmia: the conjunctiva, the eyeball itself, or the lids, and possibly all parts of the eye, are involved in the inflammation, but upon close inquiry you detect the character of periodicity in the case. You now administer the ordinary remedies, precisely as if you had a case of intermittent fever,—and you will see the inflammation disappear, as dew beneath the rays of the sun. Thus you afford prompt relief to your patient, and save him, it may be, from the loss of his eye; for, as before related, I have seen at least one person who had been deprived of an eye by this disease, which the course I have described would certainly have saved. I speak of this method of treating this form of disease with great confidence, and have so frequently and thoroughly tested it in practice, as to leave not even the shadow of a doubt of the correctness of my views; and I desire to give it such an emphasis that your minds shall be impressed with its importance, and that you may commence your course of practice with the advantage of that experience which I have had in treating these affections. And permit me once more to remind you of the utmost importance of a correct diagnosis. Without this you are groping in the dark, and practicing by guess, at the risk of your patients' lives, and your own reputation. But, determine first the real character of the disease, and then your course will generally be plain, and your treatment successful.

You find the doctrine laid down in your books, that where there

is evidence of inflammation, it must be subdued, at least to such an extent as to secure a perfect intermission of the febrile excitement, before the bark or its preparations can with safety be administered. This doctrine, I have endeavored to convince you, is not true; and there is, perhaps, no instance where its falsity is more evident than in the treatment I have employed in erysipelas, attended by periodic exacerbations. This complication I have frequently seen, and have uniformly employed the usual antiperiodic remedies for the purpose of arresting the paroxysms of fever; and so far from the inflammation or any other symptoms of the case being aggravated, I have always found them all favorably modified under the treatment. The quinine and iron are not, of course, remedies for erysipelas proper, but by arresting the complication, they relieve the system of an oppressive influence, which weighs it down and destroys its powers of resistance, and which, by its periodic febrile exacerbations, fans up and aggravates the inflammatory disease.

You will frequently find other diseases clearly marked with the symptoms of periodic exacerbations, evidently owing to the malarial influence. These cases also indicate the antiperiodic remedies, to remove the paroxysmal tendency. I have seen even scarlet fever essentially characterized by regular periods. "Is it possible," you are ready to ask, "that you will treat scarletina with antiperiodic measures?" No, gentlemen, I will not treat scarletina thus, but I should most assuredly treat this modification of it, or rather complication with it, with the very remedies I should deem applicable to the case, were there no scarlet fever present. Having overcome the periodic tendency, we then have a simple case of scarletina to treat, without the aggravating influence of paroxysmal fever.

I have also seen this peculiar symptom of periodicity associated with croup, with inflammation of the lungs, and with various other forms of disease, and I always regard them as calling for the interposition of antiperiodic agents; but as I shall speak of this matter in connection with the individual diseases, I shall not dwell upon them now. I will merely admonish you always to be on the alert for this malarial influence, so prevalent in this Western country, and which is so prone to develop itself, in connection

with every form of disease. You surely cannot be too much alive to the importance of always detecting an influence so all pervading, and at the same time so potent in producing disease. No other cause of disease is so generally diffused, and consequently the peculiar diseases produced by it, either occurring alone, or associated with others, are constantly encountered by the medical practitioner; and it should be matter of gratitude with the profession, and with the world, that Providence has furnished us means so efficient, with which to meet a morbid influence so widespread and so powerful.

We come now to speak of the treatment to be pursued to prevent a return of the paroxysms, after they have been arrested. And here your reputation is very much involved, for unless you can prevent a relapse you will be told frequently, that you can do no more than the patient can do for himself. The question propounded to the physician is not so often in reference to "breaking the chill," as whether he can prevent a return. And fortunately, gentlemen, you need have no hesitation in promising a permanent cure, with proper care and attention on the part of the patient. If the case is a protracted one, having been interrupted frequently, with a constant tendency to relapse,—as is very often the case,—you should inquire carefully into its history, and you will generally find that the relapse has occurred in one, two or three weeks from the time of interruption. Thus you will detect a tendency to a return of the disease in periods of seven days; and this is sometimes as regular and well defined as the diurnal paroxysms. It has been said that the quotidian type tends to recur every seventh day, the tertian every fourteenth, and the quartan every twenty-first day. Whether this be so or not, is not essential. The question will be, what has been the tendency of the case in hand? The answer to this question may sustain or refute the assumption, that each has a period peculiar to itself; for I have seen the quotidian return once in two weeks, and the tertian once in seven days; but you may ascertain the periodic tendency of the case before you, and having learned this much, your course is plain. Stop the paroxysms as promptly as possible, and prescribe a prophylactic against the anticipated relapse. Let your patient commence at once the use of some

general tonic and alterative medicine; for you will find these cases attended by great debility, and general functional derangement requiring more or less attention. To fulfill these indications, the common restorative gin bitters (Bone's bitters), with the addition of a small portion of podophyllum, to keep up the action of the liver, is the best article of which I have any knowledge. The bitters are composed as follows:

| | | |
|----|-------------------------------------------------------------|------|
| R. | Tamarac bark, (<i>Pinus pendula</i> ,) | 3vj. |
| | Prickly ash bark, (<i>Xanthoxylum fraxineum</i> ,) | 3iv. |
| | Wild cherry bark, (<i>Prunus virginiana</i> ,) | 3ij |
| | Seneca snake root, (<i>Polygala senega</i> ,) | 3üj |
| | Tansy leaves, (<i>Tanacetum vulgare</i> ,) | 3j |
| | Devil's bit root, (<i>Liatris spicata</i> ,) | 3j |
| | Gum aloes, (<i>Aloe spicata</i> ,) | 3ss. |

Pulverize coarsely and mix. Make an infusion of one ounce of the above in a pint of water; to this add a gill of molasses and one pint of best Holland gin. Dose, half a wineglass full two or three times daily.

These bitters, with the addition of a small proportion of podophyllum, as above stated, combine many properties adapted to fulfill the indications in such cases as we are considering. They are tonic, diaphoretic, aperient, decidedly cholagogue, and withal a good diuretic. Being thus calculated to act upon all the great emunctories of the system, and to give tone and vigor to the digestive organs, they are adapted, in an eminent degree, to correct those derangements and the debility so characteristic of these chronic cases of intermittent fever.

Another recipe, which I have found very efficient in restoring tone and healthy action in such cases, and which may be used instead of the foregoing, if preferred, is the following:

| | | |
|----|-------------------------------------|------|
| R. | Cort. peruv. | 3ij |
| | Rad. rhei. | 3j |
| | Rad. gentian, } <i>āā</i> | 3ss. |
| | Cort. aurant, } | |

Pulverise and add a quart of Lisbon wine. Dose, a wineglass full, morning and evening, slightly increased about the time when a relapse is apprehended.

There are, however, peculiar circumstances under which neither of the compounds just mentioned will be proper; as, for instance, when the tongue is red, and the pulse frequent and excited, with pain on pressure over the epigastrium, evincing gastro-intestinal irritation. In such cases, if the liver is torpid, give the following pill every evening:

R. Podophyllin gr. $\frac{1}{8}$
 Leptandrin gr. $\frac{1}{4}$
 Ext. Taraxacum, q. s.

In connection with this pill you should give an infusion of *Eupatorium perfoliatum* and *Staphylea trifolia* (bladder nut), in such doses as may agree with the stomach.

The treatment now described, whether for cases complicated with irritation or that prescribed where this condition is absent, should be continued up to and beyond the time for the next anticipated return of the disease; and about the time when the relapse is expected, a few doses of the antiperiodic remedies should be administered. By this course, you will seldom, if ever, fail of effecting a permanent cure of the intermittent disease, and at the same time you build up the strength of your patient, and restore him to health. I have never had any difficulty where I could obtain a correct history of the case, and could then completely control the patient.

If you find that the podophyllin, in the doses directed, does not overcome the torpor of the liver, make your doses more efficient by increasing their quantity. I have generally administered this medicine to the extent of producing a decided cathartic effect; and it seldom fails of success, even in the most obstinate cases of hepatic torpor.

A regular and judicious course of diet is of the utmost importance. The patient should abstain from highly seasoned and indigestible food. What he eats should be of a wholesome and nourishing character, and the quantity should be determined by the state of the digestive powers. He should eat as much as will be easily digested. I do not hold to the Grahamite system of starving patients on brown bread; I have never found such a course necessary, and do not believe it would be proper. My

rule is, generally, to restrict the patient to good, wholesome, nutritious diet, and within that limit leave him to follow the demands of his stomach, both as to the quantity of his food and the articles of which it shall consist. For, as a general rule, the appetite will require what is best for the nourishment of the body. True, the appetite sometimes becomes morbid, but this is an exception to the rule. Persons under the influence of a vitiated taste, or at the suggestion of friends, may express a desire and even a fondness for very objectionable articles of food. But in these cases imagination, or memory, or some extraneous influence suggests the desire, and not the natural promptings of the appetite. The stomach seldom is known to demand hot bread, hot tea and coffee, or greasy and highly seasoned food; and such articles I proscribe in these cases. I have usually found pork objectionable, also; and, indeed, I seldom recommend it, under any circumstances. But fowl, mutton, and wild game of all kinds, are easily digested, and very suitable articles of diet in cases of debility.

In those cases where there is much irritation of the alimentary canal, the diet should be principally of the farinaceous kind, and it is important also to apply a sinapism or other counter-irritant measure, over the stomach and bowels, from time to time, until the irritation is overcome.

I have now, gentlemen, given you my views of this disease and its treatment, as I have formed them from reading, observation, and experience. Starting from the point at which I dismiss the subject, you will, I trust, not only test the doctrines I have advocated, but, in the true spirit of progress, press onward in the way of research and investigation. For although I have endeavored to reflect upon your minds what, from long experience, I am convinced to be truth, and nothing but truth, yet I should have but little hope, either for your success as practitioners or for the advancement of medical science in your hands, did I believe you would settle down in a routine course of practice, satisfied with the experience and investigations of your predecessors. Let me impress it upon your memory, that what has been learned, and is now taught, is but the initial step to still farther investigations and greater developments of truth. If I can give you an impulse in

the direction of scientific progress, if I can, in this department, prepare you to leave college with a strong desire for truth, and a determination to prosecute your researches with energy and perseverance, I shall have accomplished my object. Go on, then, and store your minds by the constant acquisition of knowledge; make new and important discoveries in the healing art, and let the world hear from you. It will be highly gratifying to me to hear in the future, from any of those who now sit under my instructions, the announcement of the discovery of new and important truths in the science of medicine. And let me now assure you, gentlemen, that whatever your experience may suggest in this important department of human knowledge, shall never be repulsed, by me, in the dogmatic spirit of one who is wedded to old theories and long cherished prejudices. We may, and perhaps are apt to fancy that *we* have the true system of treating disease; that all has been learned that it is the privilege of man to know on particular subjects; we may indeed be abundantly successful, and entirely satisfied with our mode of treatment; still we may be mistaken. There may be other means beyond the range of our present knowledge, yet to be discovered, which shall prove more prompt, efficient, and certain than any thing now employed. And I assure you, gentlemen, that when such discoveries shall be announced, no member of the profession will hail them with more enthusiasm than I will. And I hope it will not be long before some one may be able to announce new means for the treatment of malarial disease; so that we may no longer be confined to a few antiperiodic agents in meeting this formidable, wide-spread, and ever varying class of disorders. We are not thus confined in the treatment of other maladies, and why should our resources be so limited in this most prevalent form of disease? I therefore urge you to persevere in your researches with untiring industry; look deeply into this obscure and intricate science, and contribute all in your power to the development of new practical truths.

II. REMITTENT OR BILIOUS FEVER.

We will now take up a form of disease which has received more names than any other in the nosological catalogue. It is known

by a different name in almost every distinct section of the world where it prevails; and scarcely any other disease is so nearly universal in its prevalence. I refer to remittent fever. It is often named in accordance with the location where it is remarkably prevalent. Thus it is called Bengal fever, owing to its prevalence in the vicinity of the extensive swamps on the borders of the Bay of Bengal. It is known in the malarious districts of Africa as African fever. In our own country it is sometimes called Michigan fever, because of its prevalence in that State, among the swamps and low alluvial lands, where a great amount of vegetation grows during the summer. It has also been called bilious fever, and by this name it is in fact more generally known than by any other. This last name has been applied to the disease, because it was supposed to be caused by a derangement of the biliary functions,—a most egregious error by the way, and one upon which has been based an enormous mistake in treatment. Not only did the name originate in a false view of the cause of the disease, but the false name has done much to perpetuate the error in regard to its character and treatment—an error which has, in my opinion, carried more victims to the grave than the disease itself. Students and practitioners, finding in their books the term bilious fever connected with certain characteristic symptoms, very naturally understood it to imply either structural or functional disease of the liver, and, consequently, directed all the force of their treatment to that organ; and, therefore, I have no doubt that the treatment has been more destructive to human life than the disease would have been, had it been left to contend with the unassisted recuperative efforts of the human constitution. While conversing sometime since with a very scientific and intelligent gentleman on this subject, he remarked that he had no doubt that most of the early settlers of the Scioto Valley, who had left this stage of action, the supposed victims of bilious fever, were, in reality, carried off by the treatment resulting from the misnomer. This false name has, therefore, been productive of much mischief.

It might, perhaps, with some propriety, as suggested by Dr. Wood, be called miasmatic fever; for such it is in fact. It might, also, and with equal propriety, be denominated periodical fever.

But both of these terms are as truly descriptive of intermittent as of remittent fever, both being miasmatic diseases, and both periodical also. A better name than any other, because it expresses both the cause and character of the disease, in some measure, is miasmatic remittent fever.

This form of fever occurs in nearly all parts of the United States, but it is especially endemic in that region of country extending from the Northern Lakes to the Gulf of Mexico. It is not, however, equally prevalent throughout that extent of country; there being some localities where it seldom occurs, while in others it constitutes the principal disease. It is much more prevalent on the Scioto, Miami and other rivers than on the shore of Lake Erie. And in the Southern States, where the extensive tracts of alluvial soil produce a vast amount of vegetation, and where the intense heat causes a rapid and thorough decay, this disease not only prevails more generally, but it is far more malignant and fatal than in the Northern States. It is occasionally found on the extensive bottoms of the Connecticut river; but, with this exception, it rarely occurs in the New England States—the hilly and mountainous districts being entirely exempt from it.

This disease is also more prevalent in particular seasons of the year than in others. During the autumnal months, when the profuse vegetation of summer is in the process of decay, remittent fever is more likely to prevail than at any other time; and it generally continues until the frost arrests vegetable decay, and perhaps decomposes the poisonous or morbid influence. It is not, however, entirely absent during the winter, especially when the weather is warm and open, as is frequently the case in our country; and it often reappears in the spring. So that, although autumn is the time when this disease most generally makes its appearance, you may expect to encounter it occasionally during other seasons.

Remittent fever, as has been already stated, is periodic in its character; but it is not like intermittent fever marked by a complete apyrexia. The fever in this disease exhibits regular exacerbations and remissions, sometimes quite distinctly defined; in other cases very obscure, and with difficulty recognized by an inexperienced person. The latter is likely to be the case, espe-

cially where the disease is accompanied by a paramount local derangement, the influence of which keeps up a sympathetic fever after the paroxysm of the miasmatic fever has passed off.

The *distinction*, then, between the *intermittent* and *remittent* fever, properly so called, may be briefly stated. It does not consist in a difference of origin, nor of pathology, but in the greater intensity of the same cause, connected with, or producing greater prostration of the nervous energy in remittent than in intermittent fever; and, consequently, the system is unable to completely throw off the irritating febrile influence after the paroxysm has spent its force. In the one, therefore, we have a complete suspension of febrile symptoms after each paroxysm, continuing for a longer or shorter time, according to the type of the disease, while in the other there is a mere remission, or diminution of the febrile excitement after each exacerbation. This remission is more or less distinct, and continues during a longer or shorter period, according to the violence of the disease, the general functional derangement and debility of the patient. Such is the essential difference. In fact they often run into each other; that is, the intermittent frequently degenerates into remittent fever by being neglected, or improperly treated, while, by a judicious course, the remittent may often be transformed into the intermittent. Hence, it is evident that these two fevers are in reality the same disease, produced by the same cause, either more concentrated in the one case than in the other, or else modified by peculiarities in the constitution of the patient, or by attendant circumstances. What the modifying influence is, it is often difficult to determine, and in fact it is not a point of great consequence, so far as the treatment of the fever is concerned.

Some individuals appear to be much more liable to this disease than others. This is probably owing to a difference in constitutional temperament; as persons of a nervous temperament appear less obnoxious to it than those in whom the bilious or sanguine predominates; yet none can claim entire exemption, as it selects victims from every class, condition, age and sex in the community.

The *forming stage* of bilious fever is like that of intermittent fever, with this exception: you usually find more severe symp-

toms of nervous derangement ; more pain in the back and throughout the whole body. These premonitory symptoms continue sometimes for a week, and often, where proper care is observed, will pass off without developing the disease. In other cases they last but a very short time. If the patient is unaccustomed to the disease, he goes about his business unconscious of his condition, merely feeling "a little unwell." Perhaps the appetite is somewhat diminished, a disagreeable taste is in the mouth in the morning, a general uneasiness is felt, with a disinclination to bodily exercise or mental effort ; still, as above remarked, if the patient is unaccustomed to such attacks, he may not realize the true state of his case, nor the importance of prompt measures to ward off the threatened disease. Those, however, who have had this fever, will be able to anticipate its approach, and may generally avert it by proper attention to diet, by avoiding exposure and fatigue, and by the use of some mild diaphoretic and tonic tea, as mentioned while speaking of intermittent fever. Hence, it is of vital importance that all persons should understand these premonitory symptoms.

A *chill* finally occurs ; the individual feels creeping sensations of cold, and at last a fully developed chill ; sometimes, even a shake comes on ; but as a general rule, the chill is slight, compared with that of intermittent fever. The *febrile* reaction soon follows, with symptoms essentially the same as those found in the hot stage of the intermittent. There is a general derangement of the functions of the body : the secretions being disturbed and the sensibility perverted. The pain in the back increases as the febrile reaction becomes established ; the urine, from being copious and colorless, becomes scanty and high colored. This is a symptom peculiar to this stage. Pain in the head is a very common, and often a very troublesome symptom, during the hot stage. The skin becomes hot, dry and husky ; and upon careful examination with a thermometer the heat of the body will be found positively increased. The mouth becomes dry, and the tongue covered with a white fur ; or, if the biliary function be much disturbed, the coat on the tongue will be dark brown ; sometimes, however, it is not coated at all. The eyes are suffused, and the face flushed. The pulse full and frequent. In this respect, however, there is much

variation in different cases. It is generally accelerated, but there are instances in which the pulse is actually slower than usual,—showing a low condition of the nervous and vital energies. If there is much gastro-intestinal irritation, there will be diarrhoea.

This stage lasts, usually, about twenty-four hours, when a gradual yielding of these symptoms occurs. The pulse becomes more nearly natural; the skin becomes less hot, and softer, but not moist. The urine is more copious, and, upon examination, is found to deposit a sediment, which is not the case during the reaction. There is, in short, a partial subsidence of all the febrile symptoms; but a complete intermission or apyrexia does not take place. This decline of the fever is termed, very properly, a *remission*, and this gives name to the disease.

The remission usually occurs in the morning, and continues from one to three hours. The next paroxysm or exacerbation then commences, sometimes, but not generally, preceded by a slight chill. The symptoms of the pyrexia are again fully developed, to be again followed by a remission on the succeeding day.

Such now is the ordinary course of remittent fever. But it is, of course, subject to many modifications, all of which must tend to vary the symptoms and change the aspect, if they do not obscure the character of the disease. Sometimes there are two remissions in each twenty-four hours, giving the disease the double quotidian type, though this is seldom the case. In a majority of instances, according to my observation, there is a more distinct remission every other day, being of the tertian type; while some cases are quartan, having the most distinct remission every third day. This shows a peculiar coincidence between this and intermittent fever. Sometimes the remission is so very slight as to escape the notice of an inexperienced person. But by close attention to all the symptoms, the discriminating physician will be able to recognize declension. There will be a slight decrease of heat, the pulse somewhat modified, perhaps, and the nervous excitement slightly allayed. In fact, the symptoms during the remission will be found, in different cases, to vary from a mere excitement of the pulse with almost an entire absence of other signs of fever, to that obscure declension above described, marked only by a slight diminution of the febrile symptoms.

A very frequent complication with remittent fever, especially in autumn, is congestion of the liver. The tongue, in such a case, is very thickly loaded with a dark brown coat; and very dry, often contracted, or curled up so that the patient cannot protrude it from his mouth. This may be always regarded as indicative of engorgement of the liver. In other cases, where the tongue is very red, without much fur, and with little dryness, there is irritation of the stomach, and if diarrhœa accompany, it shows that the irritation extends to the bowels. Other complications and organic derangements often occur in connection with this disease. This subject will be more thoroughly discussed, however, when we shall approach the treatment of remittent fever. These instances have been introduced here merely as examples of the modifying influence of such complications.

Here, then, you have a disease, varying in importance from a slight febrile indisposition to the most grave form of congestive fever; a disease liable to modifications in its character—by the season of the year in which it occurs; by the peculiarities of the location, in regard to the production of malaria; by the constitutional habit and condition of the patient; by complications with local affections; and sometimes by a general epidemic influence, rendering it peculiarly malignant. It is also essentially modified in its intensity by the mode of treatment. An injudicious treatment, especially if it be of the active, heroic kind, will most certainly render the disease more severe and unmanageable; while under a mild course of judicious measures, it seldom fails to assume a milder form, and finally yields. Under such treatment the remission may generally be rendered more distinct, at first, and then changed to a perfect intermission on the following day; thus transforming it to an intermittent fever, which will yield at once to antiperiodic remedies. Hence, you perceive the importance of a thorough acquaintance, not only with the symptoms of this form of fever, but with the remedies proper for its arrest, and the judicious mode of exhibiting them.

I have already said that we often have torpidity and engorgement of the liver; we sometimes, on the other hand, meet with an excessive secretion of bile; in other cases, still, the liver is in a perfectly normal condition. This cannot, therefore, be properly

called a bilious fever, as depending upon hepatic derangement. I have so often seen this disease unassociated with biliary derangement, that I am compelled totally to reject the old dogma, that it depends necessarily upon an abnormal condition of the hepatic functions. You may rely upon it, that the condition of the liver is not to be taken into account in determining the cause of intermittent fever: its derangement being a concomitant difficulty—generally, in fact, a result of the fever, instead of being a cause.

The stomach, too, may be found in conditions very diversified in different cases. I have seen patients in this disease who retained a good relish for food, digestion appearing to be duly performed; others have exhibited a high state of gastric irritation, as evinced by the redness of the tongue, and tenderness in the epigastrium; while in others still, the stomach was in such a torpid condition that it was necessary to administer an emetic before the ordinary medicines would produce any impression on the mucous membrane of that organ.

The pulse, as has been already stated, varies very much in different individuals. It generally ranges from 80 to 100 per minute,—seldom exceeding the latter rate in ordinary cases; but in those of a more grave character you will often find it as high as 120 or 130, and sometimes, especially in delicate females, whose nervous systems are very sensitive, it will even reach 150 per minute.

This subject will be resumed to-morrow.

LECTURE VIII.

REMITTENT FEVER—CONTINUED.

Complications continued—Inflammation of the Lungs—Any organ liable—Symptoms of complication peculiar—Opinions of Authors—Local Disease Secondary—Cause of Bilious Fever—Endemic Character explained—Influence of age, sex, habit, &c.—Latent Period—Diagnosis—Prognosis—Duration—Post Mortem—Treatment—Old School Doctrines—Quotations—Remarks on Calomel—Bleeding—Dr. Wood on Mercury and Quinine—Reply.

We will, this morning, for the purpose of more fully illustrating and explaining our views of the nature of remittent fever, recur again to the complications with this disease, frequently found in practice. We have previously said that the liver, stomach and bowels are often diseased in connection with this form of fever. The spleen also is very frequently involved, more so, perhaps, than any other organ. In many cases there is congestion, and sometimes inflammation of the brain. Now, although these different organs are often subjected to serious lesions in association with, and most generally resulting from, the malarial fever, they cannot be regarded as the seat of the disease, nor their affections as primary difficulties to be treated for the arrest of the fever. This point was, I think, satisfactorily established in the last lecture, where it was shown that no one organ is always diseased; that the disease may exist in the system without any symptoms of local difficulty in any organ; and that every organ of the body has been found affected in some cases, and in perfect health in others.

Inflammation of the lungs is sometimes encountered during the progress of remittent fever, especially in the winter. This complication is one of very serious importance, and must be treated upon the general principles which will be presented when we come to treat of inflammation. I will, however, here remark that its presence will be no bar to the proper measures for arresting the remittent fever.

As has been repeatedly remarked, all the organs of the body are liable to suffer more or less under the influence of the fever of which we are speaking; but the spleen is more generally involved than any other viscus, though this is not necessarily nor uniformly the case. Being a reservoir for excessive accumulations of blood in the abdominal cavity, it is more liable to engorgement than the other viscus. This condition is so obscurely marked by symptoms, that it is only when the spleen is very much enlarged, producing a tumor in that part of the abdomen, that its condition will be recognized. As in intermittent so in remittent fever, the congestion of the spleen is beyond dispute caused by the malarial influence, and it will generally disappear after the fever is arrested; if not, it must then be treated as a special difficulty.

Where the liver is in a state of congestion, the tongue exhibits the dark brown coat, and dry contracted appearance, before spoken of, and there is a yellowishness of the eyes and skin. This condition is very common in this disease during its progress; but there are so many instances where the disease makes considerable progress before biliary derangement is manifested, that we cannot regard the liver as the primary point of attack; nor is it sound philosophy or good practice to delay the radical treatment of the disease until you have corrected this secondary disorder.

Irritation of the stomach and bowels, congestion of the brain, and other instances of local disease, will always be marked by the symptoms peculiar to each. When the stomach is seriously affected it will be shown by the red tongue, by tenderness in the epigastrium, by nausea and perhaps vomiting; soreness of the abdomen, with diarrhoea, a quickened pulse, and an anxious, nervous restlessness, show an irritated condition of the bowels; and where cephalic congestion is present, there will be heat and

pain in the head, dilatation of the pupils, dullness of sight and hearing, and sometimes delirium or coma.

Such are the leading symptoms which the organic disorders or local determinations, incident to this disease, produce. Many of the authorities, regarding the local affection as the primary disease, have divided intermittent fever into the hepatic, gastric, splenic and cephalic modifications. But as it has been shown that the fever does not originate in any of the local organs, such a classification would be improper, and tend to mislead. It should not, therefore, be retained. We might, on equally good grounds, subdivide this or any other form of disease at will, were we to give them distinct names whenever we find them complicated with one or more local difficulties. That these organic and functional derangements often seriously modify the fever, and ultimately require a corresponding modification in treatment, is certainly true; but they are only occasional attendants, and cannot, with propriety, be considered in any other light than that in which we have viewed them.

The arguments in favor of the doctrine that remittent fever is developed in the system from some local or organic disorder, are as futile, when based upon pathological anatomy, as we have just found them to be when drawn from external symptoms. Post mortem examinations following this disease, do, it is true, always exhibit important organic lesions; not, however, uniform in their locality or character. Sometimes one organ, sometimes another, and often several organs are found in an abnormal condition. But these lesions are found after the disease has run its course, and worn down the patient by its inroads, until the vital powers have given way. This takes place after days, and generally weeks, of prostrating disease, and very often equally prostrating treatment; and, now, that life is extinct, and the internal organism submitted to autopsic examination, we are expected to decide where the disease made its first attack, or in other words, determine what was the condition of these organs before the disease had been established, or medicine administered. These examinations are important as means of revealing the internal changes indicated by symptoms before death. They may exhibit to us the footsteps of a protracted disease, and, it may be, the results of our medica-

tion; but they cannot reveal the cause of disease, its mode or point of attack, nor its essential character.

Having disposed, then, of the groundless assumption, that this disease necessarily locates itself at some point in the body, and extends its morbid influence from that point to the entire system, it only remains for me to reiterate the opinion presented heretofore, while speaking of intermittent fever, and of fevers in general. Had we the power to make observations sufficiently minute to detect those changes in the nervous tissue which the symptoms of this disease in its forming stage indicate, I believe we should then have autopsic evidence confirmatory of the doctrine which we have deduced from those symptoms, that this, as well as other forms of malarial fever, invades the constitution through the general nervous system. Having established this point, the successive steps and changes manifested in the disease are no longer involved in mystery; and if, in addition to this, we have discovered a remedy which can relieve the nervous system from the oppressive power of the malarial poison, we shall be able to direct our efforts for effecting a cure, with a precision nearly equal to that of the fireman who pours a stream of water upon a burning house.

But little need be said in relation to the *cause* of remittent fever. Very few individuals, making any claim to scientific knowledge, now question the correctness of the opinion, that this disease results from the influence of marsh miasmata, or vegetable malaria. This is the doctrine of the books, the schools, and the profession generally. We do, it is true, occasionally meet with an emanation from some unknown individual, who, anxious for notoriety, perhaps, or ambitious of being a public benefactor, treats the profession with a pamphlet, or, it may be, even an octavo volume of a hundred pages, made up of what the author supposes to be logical reasoning, (altogether theoretical in its character, however, and without any substantial data upon which to base his doctrine), to sustain the position that intermittent fever is dependent on changes in the electrical condition of the atmosphere, or some other equally recondite, vague and unsatisfactory assumption.

But the clearly ascertained influence of vegetable decomposi-

tion, and the well-defined phenomena denoting the uniform connection of that influence with this disease, though not an absolute demonstration of the malarial origin of this form of fever, are little less satisfactory than the deductions drawn from an ordinary chemical process which none would question for a moment. I conclude, therefore, without further argument, that this form of fever has the same cause as intermittent fever; to wit, malarial poison, resulting from the decay of vegetable matter. This view of the subject was the point from which I started in those experiments and reflections which finally resulted in an entire change of my mode of treatment. "It is a conceded point in the books," said I, "that intermittent and remittent fever have the same cause, in different degrees of concentration, or operating on different constitutions. Now if the former can be arrested by a few simple remedies, why not the latter, also, by the same remedies, more efficiently applied?" Such was my reasoning; and although previous teachings still encumbered and trammelled me, I felt my way along, as if groping in the dark, making experiments with more and more confidence, as success seemed to justify, until finally I found myself, almost unawares, occupying the bold position, that the authorities and the whole profession were wrong in regard to the treatment of bilious or remittent fever.

It is said that this disease occasionally *becomes endemic* in localities and regions of country where it was before unknown, and this fact has been adduced as a difficulty, at least, in the way of the malarial theory. But I do not perceive much force in the fact, as an objection to this doctrine, for it is certain that some change must have been effected in the vicinity to produce the disease, let its cause be what it may; and this change may be, and probably is, in all such cases, one which spreads malaria over the district. A canal has been dug, a marsh drained, a stream become dry, or some other change of the face of the country has taken place, probably unnoticed by the inhabitants themselves, yet sufficient, if rightly appreciated, to account for the generation of the vegetable miasmata.

It is scarcely necessary to remark, that *all ages, sexes, and conditions*, are liable to this disease; yet there is a *difference of susceptibility* in different constitutions. While some persons ap-

pear to be, from some idiosyncrasy, predisposed to its attacks, others are almost entirely exempt. Still no one may presume upon absolute exemption, from the fact that he has hitherto escaped, for some change in the condition of his system may occur, unaware, it may be, to himself, which will not only bring him liable to, but even predispose him for, an invasion of malarial disease. It is said that remittent fever rarely occurs among the negroes of the Southern States, though they are not exempt from it. They are, it seems, less liable than the whites; for, if statements which have been made can be relied upon, there can be no doubt that the whites, if exposed as the blacks are to the malarial influence, would suffer much more from this cause than do the latter. Whether their peculiar habits and mode of life fortify them against it, is a question which can not now, perhaps, be determined with certainty.

Persons *accustomed to reside* in a malarial region of country are less liable to this fever than those moving into such a place from districts where it does not occur. The contrary, also, is said sometimes to be the case; that is, individuals who have resided for years where remittent fever was endemic, without suffering the least symptom of the disease, have taken it immediately on removing to those hilly portions of New England where it never prevails. This is not easily accounted for.

The *latent period*, or time elapsing between exposure to the cause of the disease and its development, is exceedingly variable. It is said in the books that some will take it within a few days after exposure, while in other cases a year will elapse before it will be developed. It may, therefore, be safely said, that there is no settled opinion on this point.

The *diagnosis* of remittent fever, if suitable care be taken in the investigation of its history and character, is easy and plain. Whatever the complications; whatever organs may be involved when you are called to a case; if the forming stage is characterized by the peculiar nervous symptoms which have been described, and you are able to detect a periodical tendency in the fever, either from its past history or by your own observation, and it is in a malarious locality, you may rest satisfied that you have a case of remittent fever. As has been repeatedly remarked, it does not depend upon local

disease, and consequently no local symptoms are to be looked to as diagnostic of bilious fever; these may, or may not be present, but the points above stated will be unfailing guides to the formation of a correct opinion of the case.

The *prognosis*, under ordinary circumstances, is favorable. If allowed to run its course unmolested, its tendency is to a favorable termination in about two weeks; for in a majority of cases the system is able to throw off the disease without assistance. But in its malignant forms, unless immediate and efficient aid is secured, the patient sinks into a typhus condition and dies. Any modifications which tend to render the remissions distinct, causing them to approximate more nearly to complete intermissions, are regarded as decidedly favorable; while those which produce a contrary effect—that is, render the remissions obscure, and assimilate the disease to continued fever—as well as those which degenerate it into a low, congestive form, are always unfavorable. The last mentioned condition, as has been before remarked, is often produced by harsh and unskillful treatment, in the early stage of the disease; the stomach and other organs are thereby more thoroughly involved, (as evinced by the increased severity of the symptoms, and finally demonstrated by post mortem inspection,) and thus, by the consequent diminution of the vital forces, the patient sinks an unresisting victim to the conjoined power of disease and medicine.

Generally, however, the question of prognosis has reference rather to the duration than to the final termination of this disease. It is not whether the patient shall or shall not recover, but whether he shall languish for two, three, or more weeks, or be restored to health in as many days. And that such is the true question, community is now becoming apprised. Death would seldom result from this fever without medicine, and its former fatality was certainly owing to the radical errors which prevailed in regard to the disease and its treatment. It is not at all strange that it should have been regarded as a tedious and fatal malady, under the treatment so uniformly pursued by the profession.

Its *duration*, therefore, depends very much upon its treatment. The most recent authorities state the average duration at from ten to fifteen days, though sometimes protracted to four or more

weeks. When malignant, it sometimes terminates fatally the second or third day. Dr. Wood, who puts the average duration at fourteen or fifteen days, adds: "Under *appropriate* treatment, it is often much shortened;" and I certainly agree with him. Under the treatment which I shall soon describe, and which I have pursued for many years, I feel safe in reducing the average duration to three or four days; and I pledge my reputation that my experience fully justifies me in so doing. This is not a disease that requires a protracted course of treatment, if properly managed in the beginning. It is not necessary that the vital powers of the system shall be almost exhausted in overcoming the malady. Nor is it necessary that we resort to a course of medication to repair local injuries produced by the fever; or to remove secondary disorders, before we direct our remedies to the primary disease. At least, I have not found such a practice necessary, in a long course of almost uninterrupted professional experience, in a district of country where this form of fever is remarkably prevalent, and where it often assumes a very severe character, and presents its most embarrassing complications.

Under the mode of treatment which I once pursued, in accordance with the generally received views of the nature of "bilious" fever, I occasionally lost a patient; but I am now very well convinced that nineteen-twentieths of those I lost would have been saved under my present mode of treatment. This is by no means a gratifying reflection, I acknowledge; but I know that I did the best I could under the circumstances in which I was placed; that I took advantage of all the light that the profession enjoyed on this subject, and that my success was at least as good as that of my cotemporaries. But should I now lose a patient in remittent fever, where my prescriptions were promptly and thoroughly carried into effect, I should be exceedingly disappointed and mortified. I have not been accustomed to such a result for many years, and should certainly be taken by surprise to find myself discomfited now. I do not, of course, claim to be able to cure every case, under whatever circumstances it may occur. Neglect or mismanagement in the beginning, previous to my being called, or its being connected with some paramount disease of a fatal character, may prevent restoration to health; but even in

such cases I have always been able to arrest the periodical fever, without ever aggravating the accompanying disease ; and usually with a beneficial effect upon the general condition of the patient. But in uncomplicated remittent fever I never expect to lose a case, where my prescriptions are followed ; and even where complications exist, if the vital powers have not been undermined by disease or treatment before I am called, I certainly would not expect to lose one case in one hundred. I did not lose a single case from this disease during the past season, although I treated a large number.

In regard to *post mortem* appearances, it is scarcely necessary to remark, further than to refer to what was said under intermittent fever. This disease, it may be maintained, never proves fatal in its simple form ; and where death occurs from inflammation or congestion, the organ or organs affected will of course present the evidences of such disorder. If the mucous membrane of the stomach is inflamed, or that of the bowels, the appearances after death will be such as will be described under gastritis and enteritis. Inflammation of the brain or of the lungs, if present, will be indicated by the pathological appearances of those affections. The liver will present different appearances, according to the degree, duration and manner of its involvement. It is often entirely healthy, sometimes slightly engorged, perhaps enlarged ; its color is sometimes changed to a dark slate color, or to a kind of bronze. In protracted cases it is sometimes friable, or softened, approaching disorganization. The spleen is very generally engorged, and often enlarged to several times its natural size ; usually softened, sometimes entirely broken down. Occasionally it is but little affected.

The blood, in the commencement of this disease, presents no buffy coat, according to old school authority. Later in the course of the fever, when inflammation becomes superinduced, it is manifested by the buffy coat and cupped appearance of blood drawn from the system. After death it is much vitiated, containing elements of bile, in excessive quantity sometimes, and generally tending to rapid decomposition.

We come now to the *treatment* of remittent fever. With a view of affording you a truthful and satisfactory statement of the

treatment confidently recommended by the recent and reputable authorities, and generally adopted by the profession; and with a view, also, of placing such treatment in juxtaposition with a course of medication pursued by myself through a series of years and in thousands of cases, under highly concentrated malarial influences, and with the most satisfactory results; I propose now to read to you an extract from the writings of Dr. Wood, whose work on Theory and Practice of Medicine is in high repute, and goes very far in giving direction to the modes of medication among American practitioners. And I would fain call upon that author, for whom as a physician and gentleman I entertain profound respect, to review his practice, and test, at the bedside of his patients, the correctness of the doctrines I am endeavoring to elucidate, and the efficiency of the treatment I advocate. Could I have assurance that he would do this, I should expect very soon to hear from him an enthusiastic proclamation of a change in his views. Such an announcement, from him, I should regard as one of the most fortunate events of the age; as it would prevent a vast amount of suffering and mortality, which must certainly result from the influence of his teachings. He says:

“After reaction, attention should, as a general rule, be first directed to the alimentary canal. At one time, it was strongly recommended to begin the treatment with an emetic; and many still adhere to the practice. But, though in some instances this class of medicines appears to exercise a favorable influence upon the fever, moderating the frequency of pulse and the heat of skin, and calming cerebral excitement; yet, in others, it aggravates existing irritation of stomach, and perhaps determines the supervention of gastritis. This danger is generally thought to outweigh the probable advantage, and emetics have therefore fallen into comparative disuse. There is, however, one condition, early in the disease, which occasionally justifies and even demands their employment. Allusion is had to the presence of irritating substances in the stomach. These produce all the evil effects of emetics, and more continuously. The indication, therefore, for their evacuation is obvious.” * * * * *

“An active *cathartic* is almost always indicated. Either the portal circulation, including that of the liver, is congested, or the

bowels are loaded with fecal and bilious accumulations, which act as a constant source of irritation and discomfort. Depletion and derivation from the brain are also desirable in this stage of the disease. On all these accounts, it is proper to give a full dose of purgative medicine. Calomel is beyond all comparison the best adapted to the case. It remains better than most others upon the stomach, and has a special tendency to act on the liver, the secretory function of which it promotes, and thereby unloads the portal circle, while it also tends to free the blood from the biliary matter which may have become redundant in that fluid. Experience, moreover, has almost universally pronounced in its favor." * * *

"The cathartic should be given, whether the patient be seen first during the paroxysm, or the remission. It will sometimes be better received by the stomach, and operate more kindly, in the latter state than in the former. Should the patient be unable to take calomel, as sometimes happens, in consequence of an idiosyncrasy which causes this medicine to occasion excessive pain in the stomach and bowels, the mercurial pill may be substituted, in the dose of ten or fifteen grains, combined with extract of jalap, rhubarb, &c.

"After the bowels have been thoroughly evacuated, it will be sufficient, as a general rule, during the remainder of the complaint, to keep them open once or twice daily. This is often effected by the medicines which are given for other purposes. If not, half an ounce or less of sulphate of magnesia, sulphate of soda, tartrate of potassa and soda, or other saline purgative, a seidlitz powder, a drachm of magnesia, or three or four fluid drachms of castor oil, may be given as circumstances seem to require. Sometimes it will be more convenient, and answer equally well, to effect the object by means of enemata.

"Another remedy, sometimes of great importance in the early stage of bilious fever, is *bleeding*. There are, however, many cases in which it is altogether unnecessary, and many in which it is positively hurtful. When the powers of life are feeble, or the system depressed by the coöperation of sedative agents with the main cause of the disease, it may even prostrate below the point of reaction. This is especially the case in tropical climates, where the continued influence of heat produces habitual relaxation,

and fatal collapse in bilious fevers is not uncommon. The same may also be the case with persons debilitated by previous disease, or by intemperance, and in whom a typhus influence is operating conjointly with the miasmatic. Bleeding, therefore, must not be indiscriminately resorted to. It is wholly powerless in the eradication, or even in the control of the febrile movement."

This is unquestionably true; and I cannot possibly conceive of a case in which bleeding could affect anything towards a removal of the disease. Can it ever do so? No man can sustain the affirmative. Then why resort to it? But Dr. Wood continues:

"The force of the pulse may be reduced and the strength of the body exhausted, and yet the fever shall not have abated an iota of its violence, or its duration."

Another well settled truth; and yet bleeding is often of great importance in the "*early stage of bilious fever.*" How can a measure which is powerless to eradicate or even control the febrile excitement—although it may exhaust the strength of the body, and is often positively hurtful—be important in this disease? Let the same author answer:

"The only legitimate object of venesection in remittent fever, is the prevention of organic injury from inflammation or local determinations of blood. But as these are very often the immediate cause of death, it is often of the utmost importance to be able to control them, and bleeding is among our most efficient means for this purpose. Hence, the indication for this remedy is the positive or apprehended existence of inflammation, or of some active sanguineous congestion. But, though these constitute indications, there may be others which more than counterbalance them, and bleeding is not always admissible, even in cases of inflammation. This may exist in connexion with an asthenic as well as a sthenic state of system; and it is very possible, in the former case, that in attempting to reduce the local disease, we may exhaust the little remaining strength, and thus disable the system from supporting the course of morbid actions, requisite to the restoration of health. There must, therefore, be not only inflammation, or threatening active congestion, or a reasonable fear of them; but also sufficient general energy to support the system through the disease, after the blood has been lost."

Several questions are suggested by the quotation just read. The first is, what relation does inflammation, or active congestion, whether present or threatened, sustain to remittent fever? Is it the cause of the febrile disease? If the cause, then the local affection is the principal disease, and the fever merely symptomatic or secondary. But if this be so, then this subject has been introduced by the author before us under the wrong head, for he is now treating of a disease, caused, as he says, by vegetable miasmata, one in which many cases exhibit no "signs of any local affection sufficient to induce a fever." The next question which arises is this: where inflammation or congestion exists, or is apprehended, is it not caused by the malarial fever? Dr. Wood admits, in another place, that these local difficulties are generally secondary, making their "appearance several days after the commencement of the attack," and I repeat, if they are not secondary, they should be treated of in their proper place. If, then, they are effects of the fever, what philosophy is there in employing a measure with special reference to their removal or prevention, which is "wholly powerless in the eradication or even in the control of the febrile movement," and, therefore, utterly inadequate to remove or modify the cause of the organic disorder? May not the fever produce local determinations even after the strength of your patient has been exhausted, and his system reduced to an asthenic state, by the loss of blood? And, if so, what measure will you then employ to relieve the inflamed or congested organ? Must every patient, whose system is in an asthenic state, from whatever cause, be given up as lost on the supervention of a local determination of blood, for the reason that there is not strength to allow this measure to be employed? Especially, why bleed where "inflammation, or some active sanguineous congestion" is merely apprehended? Are they not always to be apprehended in severe attacks of bilious fever, unless its progress can be arrested? Suppose you meet a case where a spike has been driven into the body of a man, and remains there still. You know it is there, and that you can extract it with little difficulty. But you have reason to apprehend inflammation in this case, certainly. Will you stop to bleed your patient before removing the irritating foreign body? Then, why, let me

ask, shall we stop to tamper with existing secondary disorders, or waste precious time, and the strength of our patients, in apprehension of future difficulties, when we have in our hands the means of removing the malarial poison from the system, and thus eliminating at once the cause of both present and anticipated evil? That such resources are within the reach of the physician does not now admit of a doubt in my mind, and I hope to be able to satisfy you of the fact before the subject is dismissed.

Dr. Wood closes his remarks on blood-letting as follows: "It is seldom that more than one full bleeding is required in bilious fever. A moderate tentative bleeding, of six or eight ounces, may often be advantageously repeated; but after the loss of twelve, sixteen or twenty ounces of blood, or it may be in robust and plethoric men as much as thirty ounces, whatever more is done in this way should be accomplished by local depletion."

Notwithstanding such practice is regarded as proper by Dr. Wood and others, my observation would prevent me from testifying in favor of its propriety, or even its safety. I have never seen a case in which the lancet was employed with any evident advantage; but I have seen many instances where decided and unequivocal injury resulted from its use. I will mention one case: I was called to see a patient in remittent fever, who had been treated during five days by a physician of some reputation. He had bled him five times, taking at each time a quantity varying from half a gallon to one pint, and still the disease was not cured, nor was it then in my power, nor that of any other man, as I believe, to save the patient's life. I found him with a small vibrating pulse, with lips almost as pale as the sheets on which he lay, and a countenance as haggard as the corpse which he soon became. He sank and died, I have no doubt, from the loss of blood drawn from him by his scientific medical attendant.

I continue to quote from Dr. Wood:

"After the evacuation of the primæ viæ, and the use of the lancet, if that may have been considered advisable, *diaphoretics* come in with great advantage. Some authors speak slightly of these remedies. But when we consider that nature very often brings about a partial or complete solution of the paroxysm of fever by sweating, the inference appears very reasonable that we

shall favor this result by promoting her own favorite process. Nor do I think that experience is opposed to this conclusion of the judgment. It has always appeared to me that diaphoresis, brought about by proper means, during the febrile exacerbation, often has a most happy effect in moderating its violence, shortening its duration, and rendering the subsequent remission more complete. Of course, the sweating is not to be induced by stimulating means. In the early stages, the *refrigerant diaphoretics* only should be employed. When the stomach is not in the least degree irritable, the *antimonials* may be used with advantage.” * * * * *

Refrigerant diaphoretics, and other mild palliative means are, certainly, proper during the hot stage, to moderate its violence, and shorten its duration. But in a disease, which, like remittent fever, is so generally attended by gastro-intestinal irritation, I could not think of prescribing, in any stage, agents so likely to produce irritation of the stomach as the “antimonials.” It is not pretended that they are curative, but merely palliative, and their irritating character will not be denied; all the good that can be effected by them can be as well accomplished by less irritant means; and by their administration that very condition which is always to be “apprehended,” in this disease, is very likely to be developed. Whatever, therefore, may be said of their use in other forms of disease, they certainly should not be employed in this.

“The *effervescent draught*,” continues Dr. W., “is beyond all comparison the best diaphoretic in bilious fever. But it should always be prepared with citric acid or lemon juice, and the carbonate of potassa; and, of course, should have the citrate of potassa for its base,” &c.

“The neutral mixture (*Liquor Potassæ Citratis U. S.*) which consists of the same materials already fully effervesced, is often substituted for the effervescing draught; but from abundant experience of the two preparations, I almost always prefer the latter,” &c.

“*Solution of acetate of ammonia*, or the spirit of mindererus, is much esteemed by some practitioners; but after frequent trials

with it, I have found it in all respects inferior to the preparations of citrate of potassa.

“The *warm bath* is sometimes serviceable, in connection with diaphoretics, in inducing relaxation of the surface. It is especially adapted to the cases of children.

“The external application of cold water is also highly beneficial in febrile exacerbations. Much comfort will be afforded by simply sponging the arms, feet, and face; but a more efficient method of application, in reference to a solution of the paroxysm, is that of effusion, as recommended by Dr. Currie, of Liverpool,” &c.

“In mild cases of remittent fever, few other remedies will be required besides those above detailed.”

Let us here recapitulate. Emetics, cathartics, bleeding, diaphoretics, warm and cold water, are nearly all the remedies that will be required “*in mild cases.*” But the doctor adds: “When the remissions are very distinct, and approach the character of intermissions, the case may often be greatly hastened by the use of quinia.” “But violent and threatening cases demand additional treatment.”

I desire you will observe the peculiarity of the treatment we have been reviewing, that you may mark the contrast between it and that which will be presented in a short time as the practice of your present teacher. Remember that after the use of all the classes of medicines above enumerated, in mild cases, then, provided “the remissions are very distinct, and approach the character of intermissions, the cure may *often be greatly hastened* by the use of quinia.” If the enemy has not been frightened from the citadel by these attacks upon the ramparts, his departure may finally be hastened by a shot or two aimed specifically at him.

Although the quotations which have now been made are sufficient to give a correct general outline of that mode of practice taught by Prof. Wood, yet I cannot refrain from presenting an extract or two from his remarks on the use of mercury and quinia.

“*Mercury*,” he says, “has enjoyed a very high and merited reputation in this disease. It has been frequently observed that few patients die of bilious fever whose systems have been brought

under the influence of this remedy. The reply, indeed, has been made to this argument in its favor, that those cases only are susceptible to the action of mercury which can be cured by other means, or would get well spontaneously. But this is obviously assumption. Nor is the statement true. In cases which run their course in a few days, it is sometimes impossible to affect the mouth, but these are by no means the only dangerous cases, nor indeed a majority of them. In most instances the disease advances to the ninth day, or beyond it, before proving fatal. Of such cases there are very few in which the mercurial influence cannot be established; and the inference is, that were proper attempts made to establish it, very few would end fatally."

Here permit a remark or two. What Dr. W. calls an "assumption" and pronounces untrue in the quotation just read, seems to me to amount almost to a self-evident proposition. The mercurial disease has been substituted for the original malady—a more potent morbid influence has taken the place of the malarial poison. Now if the system can sustain itself under, and finally throw off, this more powerful assault, would it not have been able to recover spontaneously, or by the aid of other means, from the attack of fever? But another reply may be made to the above argument in favor of mercury. If it be true that "few patients die of *bilious fever* whose systems have been brought under the influence of this remedy," it is unquestionably true that many have died from mercurial disease where the original attack was bilious fever. In other words, we have no guaranty that the patient will be restored to health in the fact that his system has been mercurialized, as hundreds of fatal cases, and hundreds more of broken down and debilitated constitutions, in this Western country amply prove. Further, it is admitted that mercury can effect nothing in those "cases which run their course in a few days," while there are a few—"very few cases," it is true, as claimed—still there are cases in which the disease has advanced to the ninth day, or beyond it, yet "in which the mercurial influence can not be established." Now I undertake to say that there are but "very few" cases of those which "advance to the ninth day" that would not recover spontaneously; and that, in almost every instance, the disease may be arrested by proper treatment

long before the ninth day. So that I am fully convinced that the use of mercury greatly increases the mortality following attacks of this disease, and that it protracts the sickness, and renders recovery tedious in a large majority of cases which finally get well, while it produces permanent injury in a great many constitutions.

Dr. W. continues: "Another argument against the use of mercury, is its liability to produce serious and even dangerous disease of the mouth. This very rarely happens, when the remedy is properly managed. I have never, in my public or private practice, witnessed a case of deformity or death from this cause. It is true that, from idiosyncrasies, patients are sometimes violently affected by the medicine, however carefully employed. But this is no reason for abandoning its use altogether. There is no efficient remedy of which the same may not be said. Death has often resulted from erysipelas following wounds; but patients are not, on this account, to be deprived of all the advantages resulting from the knife of the surgeon."

In reply I say, that were it the natural tendency of the surgeon's knife to produce erysipelas; did it require some peculiar management to prevent such a result, not only in cases of idiosyncrasy but in all cases, and could all the advantages of surgical operations be as well or more certainly attained by other means, I should most assuredly reject the knife altogether. And such must be shown to be the facts, to make the two cases at all analogous, and give any degree of pertinency to the learned doctor's illustration. It is certainly the tendency of mercurial influence, when fully established, to produce not only serious and dangerous disease of the mouth, but general constitutional derangement; and it is equally certain that no management can, in many instances, control its action; and that it is impossible ever to foresee its effect in any given case. The idiosyncrasies admitted to exist, and which are much more numerous than Dr. Wood's experience would seem to indicate, are sufficient to render its effect always uncertain; but when we take into account the many peculiarities of condition which may modify its action, it is impossible, in any case, to foretell its effect. Suppose, for instance, calomel, or the chloride of mercury, the form generally employed, be

given in the ordinary dose; and suppose this meets, in the stomach, with chloric acid, caused by the chemical decomposition of common salt (chloride of soda); the result will, of course, be the formation of the bi-chloride of mercury, or corrosive sublimate, from the affinity of chloric acid for the mercurial base. Now what physician can predetermine to what extent this change will take place in the stomach of a patient, for whom he prescribes a dose of calomel, and what man fully realizing the possible result, would not eagerly seize upon any well attested and safe substitute? Well, gentlemen, such a substitute has been discovered for this dangerous agent, as you will be convinced, I trust, during the progress of the present course of lectures.

The treatment of this disease will be given in the next lecture.

LECTURE IX.

REMITTENT FEVER.

Remittent Fever continued—Treatment when first called—How to proceed—Palliate till Fever begins to Decline—Antiperiodics—Recipe—If not arrested the first day, repeat—Emetics considered—Cathartics considered—Treatment has reference to Paroxysm—Tonics, when necessary—Complications—Different Complications—Gastro-intestinal Symptoms, Treatment for—Congestive Variety—Symptoms—Treatment.—Over-action of Liver—Remedy for.—Determination to Brain—Symptoms—Treatment.—General Remarks.—Typhus Symptoms—Management of such cases—Diet and Exercise.

In describing the treatment for remittent fever, which in my view is at the same time the most safe and the most efficient, I shall assume no position which cannot be sustained by facts and observations occurring during an experience of many years. I have already given you a synopsis of the views of one of the most lucid and popular authors of the present age, and, by reference to the work from which I quoted yesterday, you can read his opinions in extenso. With him I have the pleasure of coinciding in many points; but in regard to the radical means and mode of treating bilious fever, I must essentially differ from him. And so also with reference to other authors whose works are in every medical library; while they all agree in some particulars and disagree in others, I, too, claim the privilege of thinking and observing for myself, and, where experience requires it, I shall even venture to differ from them all. For whatever arguments, opinions or doctrines may be advanced by others; however plaus-

ible their theories, and however laboriously sustained by finely drawn flourishes and speculations attenuated to infinity, the actual and daily experience of one practical, observing person, is more to be relied upon than the whole combined.

As an individual I claim to have made some observations, and treasured up some facts, during my long experience in the treatment of this disease; and the views of treatment which are sustained by all those facts, and by every case I have ever seen, I cannot abandon for the theoretical dogmas of any man or set of men. I feel bound by all the principles of right, truth and justice, to adhere to these views, and not from any egotistical partiality to my own opinions, I trust, nor from a captious or controversial feeling in reference to the doctrines of others; for were I not impelled by a sense of duty to assume the position I do, it would be far from my desire to advocate doctrines adverse to the majority of medical authorities.

Were the treatment I am about to suggest sustained by a few isolated cases merely, or by the application of remedies for only a short period of time, I should feel that I was dealing unjustly towards you, by recommending a different course of treatment from that laid down by the most recent authorities. But my present views are the result of experience in thousands of cases, observed during a series of years, in a country where the disease has presented all its various phases. I have tested them in all the multiplied forms and modifications of the disease. I therefore feel great confidence in recommending them to your consideration, being assured that if you reduce my teaching to experiment you will realize results similar to those which have attended my practice.

I doubt not, gentlemen, you have anticipated what I am about to present as the first and leading idea by which you should be governed in the *treatment of remittent fever*. I have heretofore laid it down as a general rule, and need scarcely repeat it here, that when, upon careful inquiry and examination, you are satisfied that you have a clear case of malarial fever, you should first of all prescribe for that disease, regardless of peculiarities, modifications or complications. By this I mean that you are not to adapt your treatment to the removal of local or secondary affec-

tions—such as congestion or inflammation of the liver, irritation of the stomach and bowels, &c.,—though these may be present; but exhibit at once those remedies which are adapted to any other form of periodical fever. First, eradicate the paramount disease, and then, provided the secondary disorders remain, it will be time enough to apply your remedies for their removal. Generally, however, nature will be fully competent to complete the cure, after the malarial fever is subdued. But if you pursue a different course, and first treat the local and secondary affections, when present, or give medicine to prevent such as may be apprehended, you not only lose time which is of great importance, but the very measures you employ for such purposes will weaken your patient, irritate his nervous system, and very probably run him into a low grade of fever, from which it will be difficult for him to recover. I repeat, therefore, and would do so with earnestness, do not wait to prepare, nor deplete the patient, previous to the administration of antiperiodics, but administer them, give them regardless of irritation, congestion or inflammation,—and my word for it, in nine cases out of ten any local difficulty that may attend the disease will subside spontaneously, or be amenable to subsequent appropriate treatment. Were I partial to the lancet and to calomel as means for the reduction of inflammation, and had a case in which the inflammatory symptoms were unequivocal, I should, with my experience in view, defer the use of both until I had overcome the primary fever; for this can be done at once, and with certainty, without ever aggravating the inflammation, and generally with a contrary effect.

When first called to a case of remittent fever, if you find the patient in the hot stage or exacerbation of fever, you should employ means to palliate, as much as possible, the febrile action. Bathe the surface frequently with weak lye and whisky, and give mild, soothing diaphoretics, so as to quiet the nervous excitement. This course will accomplish two objects: it will satisfy your patient, who will expect something to be done for him at once, and it will probably shorten the exacerbation.

When the time for a remission approaches, whether there is much sensible decline of the fever or not, come in with the anti

periodic remedies. My usual prescription under these circumstances, is

R. Quiniae sulphas, } $\bar{a}\bar{a}$gr. iij.
 Ferri ferrocyanuretum, }

Mix and give in syrup or sweetened water, every two hours, until five doses have been administered. Should the fever rise before the five powders have been given, desist during the exacerbation, and commence again with the next remission. When the powders have to be thus suspended it will be well to continue them during the next remission until, all together, six or eight have been taken.

Generally, after the administration of one or two of these powders, a gradual subsidence of the fever will occur, and a gentle perspiration break out over the entire surface; and, in four-fifths of the cases which occur in ordinary practice, five powders will be sufficient to effect the cure,—the fever seeming to disappear under the influence of the medicine, as dew before the sun. In many cases, too, where symptoms of local congestion are present, they will disappear with the fever, or soon after it, and the patient be restored to health without further medication.

When the fever is more obstinate, as is sometimes the case, and rises under the administration of the medicine, you should, as above stated, desist until the exacerbation begins to subside, palliating, as at first, during its continuance, and upon its decline resume your antiperiodic treatment. And now you will find, that although you did not prevent an exacerbation by your first prescription, you have nevertheless gained much by it; for the succeeding remission is longer and much more complete; and it is a very rare case indeed which does not yield during the second remission. And if this be not the result, the next exacerbation will be still more mild, and followed by a complete intermission; and two or three more powders of the quinine and iron will be sufficient to completely arrest the disease.

The course just described will most assuredly break up the periodical fever. There may, it is true, be some local or general disease, which, although perhaps caused by the malarial fever, has become fixed in the system: and this may now operate as a cause of continued febrile excitement. But this is not remittent

or bilious fever, and is not marked with the same symptoms. The latter disease has been eradicated, and you have now to treat the remaining disorder, of whatever character, upon general principles. I shall speak more particularly of this subject further on, but I will here again assure you, that you will always find it a much more easy task to treat such affections after the malarial fever is arrested than before.

I have now described to you my mode of treatment in an ordinary case of remittent fever. To say that it must not or should not be varied would be empiricism. The discrimination and sound judgment of the physician will always be in requisition, even in the simple course which I have laid down. The age, sex and constitution of the patient, the type of the disease, and the malignancy of the attack, should all be considered, in determining upon the size and frequency of the doses, and the time at which it is best to commence the administration of the antiperiodic medicine. In a mild, or even ordinary case, the moderate course above described is sufficiently efficient to arrest the disease, while it does not overwhelm the patient with the influence of medicine. But in urgent cases, where there is danger that the patient may be overpowered speedily by the disease, and the remission is likely to be short, the medicine should certainly be given in doses much larger than those I have specified.

You will doubtless have noticed that I have made no mention of emetics, cathartics or the lancet, as agents necessary in the treatment of this disease. However important evacuants and depletives may be in the estimation of others, as preliminary to the exhibition of quinine, they form no part of my treatment for the removal of this or any other form of malarial fever, for the conclusive reason that the fever does not arise from accumulations nor repletion. If you ask what I do where there are evidently accumulations in the stomach and bowels? I reply, that where the stomach is oppressed with undigested food or acrid secretions, I should give an emetic, and in case of undoubted accumulations in the bowels, I should unload them by a mild cathartic; but in either case I should not wait for the remission before employing these measures, neither should I allow them to prevent the administration of the antiperiodics during the first

remission. If an emetic is deemed important, its administration will require but a short time, and it may be given during the paroxysm, with the effect, frequently, of shortening its duration. When thus employed, I regard it as a palliative, and not as a radical measure. So, also, of cathartics, whether given with a view of unloading the bowels, merely, or for the purpose of stimulating the liver, or both. They are mere adjuvants which, when indicated by urgent symptoms, may give comfort to the patient, and hasten a return of healthy action. Still, no time should be lost for their administration. The good they may do in any case, as preliminary measures, is much overbalanced by one febrile exacerbation. But when necessary, both may be given together. When the time arrives for the patient to take the antiperiodic powders, a portion of podophyllin and leptandrin may be combined with the first dose of quinine and iron, where the object is merely to evacuate the bowels; and where the cholagogue effect is desired, smaller portions of the same medicines may be combined with every alternate powder.

Another peculiarity in my mode of treatment has not failed, I suppose, to attract your notice. I refer to the fact that I administer the antiperiodics in the very first remission, however slight, and do not wait, according to the old system, until a complete intermission is produced. In other words, I do not consider the mere presence of fever, any more than that of irritation, congestion or inflammation, as contraindicating the radical treatment for remittent fever. "Why, then," perhaps you ask, "do you not give the antiperiodic medicine during the exacerbation?" I reply, that there is no serious objection to it, and I have done so under certain circumstances, and never saw any reason to regret it. It does not increase the heat of the body nor the force or frequency of the pulse. This is evident, also, from the fact that a paroxysm of fever occurring after the administration of the anti-periodic medicines, and while the patient is under their influence to some extent, is seldom as severe as might have been expected had nothing been done during the remission. Still, where there is no necessity for a change, I prefer to conform to the usual mode, and prescribe the antiperiodic remedies during the remission. I base this preference upon the fact that

no time is lost by waiting for the remission in ordinary cases, especially if we commence our radical measures as soon as the fever begins evidently to decline. It is highly probable that the stomach, during the exacerbation, is not in a condition to respond promptly to the medicine, as the process of absorption is to some extent arrested, which would cause the medicine to lie inoperative in the *primæ viæ*, until the exacerbation begins to pass off, and the organs in a measure resume their functions. The presence of these medicines in contact with the mucous membrane of the stomach, it is possible, may tend to increase the nervous symptoms, so unpleasant in the hot stage, and thus add to the discomfort of the patient. In this way the medicine appears to coincide temporarily with the fever, during that part of the struggle in which the disease has the ascendancy of the powers of the system, while, if given at the decline of fever, when the system is recovering from the shock, it comes in opportunely to the support of the nervous system, strengthens it for the next encounter, and thus, by coinciding with and assisting the natural powers of resistance, gives the disease its passport. Such, I am confident, is the ultimate effect, also, of these remedies, even when given during the rise of the fever. The unpleasant effects are but transient, and the medicine ultimately exerts fully its curative influence. So that the preference, after all, for the remission as the time for giving the antiperiodics, refers to the comfort of the sufferer, and not to the final result. We prefer to palliate the febrile excitement, and hasten, as far as possible, a termination of the exacerbation, and then come in with our radical measures at the first moment in which they will probably be of service.

On some occasions, however, when I anticipated a very slight remission, and was anxious to get the system under the influence of the antiperiodic remedies as soon as possible, I have commenced at once with them, regardless of the febrile exacerbation, and, as before remarked, without anything occurring to cause me to regret the prescription. Indeed, I have sometimes entertained doubts whether there are any unpleasant temporary effects to be apprehended from such a course; and I have almost concluded that the preference for the remission is based upon an ideal rather than a real objection. Of one thing I am certain; which is, that

when the quinine and iron have been combined with a cholagogue aperient, and given in the hot stage, no unpleasant symptoms have ever followed in my practice, and I have frequently prescribed them in that way. For instance, I am called to a case in the evening, while the fever is rising, and it is probable there will be but a very brief remission in the morning. The bowels are impacted, the liver torpid, and all the symptoms admonish me that no time is to be lost, but that every stroke should be made to tell. Now in this case, the patient being an adult male of ordinary constitution, my prescription is three or four grains each of the sulphate of quinia and prussiate of iron, with one-fourth of a grain of podophyllin and half a grain of leptandrin. And the result for which I shall look with confidence, in addition to the cholagogue and cathartic effect, is an earlier decline of the fever, a more distinct and durable remission, and consequently more time in which to give medicine for the arrest of the disease, than could have been gained by any other course.

The foregoing treatment has reference mainly to the arrest of the paroxysms of fever. If, however, this is accomplished by the means I have mentioned, before the disease has progressed very far, little further medication is necessary. The system not having been much debilitated by either disease or treatment, the patient will recover his strength and ordinary vigor with little assistance from medicine. Should the bowels be tardy in assuming their regular action, a mild aperient will set them right; and should there continue some torpidity of the liver, the aperient should possess cholagogue properties. Any other function which may appear torpid or languid, may be corrected also by the appropriate means. But generally, nothing of this kind is required in the convalescent stage of uncomplicated bilious fever, if it has been properly treated at an early period after the attack. Attention to the diet, which should be wholesome and digestible, but not low, though moderate as to quantity, and care to avoid exposure or over exercise, will be sufficient, in such cases, to secure a complete restoration to health, with scarcely an exception.

Where the constitution was feeble previous to the attack, or the proper treatment has not been employed until the system is debilitated, although there may be no complication nor local diffi-

culty remaining, there is frequently a general debility, a want of nervous energy in the system to commence and carry on the recuperative process. Where this is the case, the use of stimulant tonics, with some mild alterative medicine, will be highly proper and useful; and I know of no better prescription in this case than the Restorative or Bone's Bitters, of which a recipe was given in the treatment of intermittent fever. The podophyllin may be added, or not, according to the indication in the case, and the dose regulated by the effect produced on the stomach and bowels.

Where complications exist in connection with this disease, or where inflammation, congestion or irritation has been produced by it, the subsequent treatment may be much more difficult. Though where the accompanying disorder is the result of the remittent fever, it must have become very deeply fixed indeed, if it do not disappear very soon after the arrest of the paroxysms. Where such is not the case, the secondary affection is now to be regarded as an independent disease, and treated accordingly. The treatment for the more common disorders of this kind will now be given. Where the coëxistent disease has had an independent origin, as where malarial fever is complicated with small-pox, scarletina, pneumonia, &c., the remaining disease will of course be amenable to the treatment described under the appropriate head.

Gastro-Intestinal Irritation. If the stomach and bowels have become irritated during the progress, and remain so after the arrest of the periodical fever, the case should be treated cautiously and mildly. There will generally, in such cases, be distress in the abdomen, nausea, perhaps vomiting, and frequently diarrhoea. The tongue will be red, nearly or quite clean, but not dry, in the condition of which I now speak; and there will be discovered tenderness under pressure in the epigastrium, and perhaps in other regions of the abdomen. The evacuations are mucous and slimy, or very thin and light colored. For, concurrent with the irritated state of the alimentary canal, there is generally a torpid condition of the liver. In this case my practice is to suspend all active internal means, and adopt a mild, soothing course of treatment. With this view, I direct the patient to drink a cold infusion of the *althæa officinalis* or *ulmus fulva*, and put him upon

a very light diet — as rice or barley gruel. If there is much distress I give a small morphine powder, but avoid this whenever I can well do so. Externally, I apply large cataplasms of bread and milk over the stomach and bowels, and sinapisms to the wrists and feet, to invite the circulation to the extremities. The cataplasm should be renewed from time to time, to prevent its becoming dry, and the sinapisms may be taken off when no longer tolerated, and, if the extremities are cold, applied to new places, or to the same places after the lapse of a short time. The whole surface should be bathed frequently with weak lye and whisky. This is a very important measure, and should by no means be neglected. So long as there is either heat or dryness of the skin, the bath should be applied several times every day; this may be done with a sponge or towel, followed by brisk friction. If there is diarrhœa, the foregoing treatment will probably correct it, and if not, it may be controlled by the use of an injection of starch with a small quantity of laudanum, after each discharge.

It has already been remarked that this gastro-intestinal irritation is accompanied by torpor of the biliary function. Under these circumstances the first impulse would be, in the mind of an inexperienced practitioner, to prescribe a cholagogue medicine: and calomel or podophyllin would be called into service, according to his peculiar views. Such a course will most certainly do harm rather than good, by aggravating the irritation of the stomach and bowels, while it will leave the liver unrelieved. It is this very intestinal irritation which has extended by sympathy to the hepatic system and thus locked it up. In this state of things it is vain to hope for a cholagogue effect from any agents thrown into the stomach; the existing irritation must be removed, or much alleviated, before the mucous surfaces will respond to medicines adapted to stimulate the liver or other secreting organs. Nor is it desirable, under such circumstances, to cause the liver to disgorge itself, and throw its vitiated, acrid secretions into the already irritated intestines. Indeed, we should rather regard the suspension of the biliary discharge as a beneficent provision of nature, to allow time for the healing of the abraded and irritated mucous surface. And this view of the case is confirmed by my

experience, and if you take my advice, will, I have no doubt, be confirmed by yours. Let the liver alone, and pursue the mild, soothing, and revulsive course I have described, and about the time the gastro-intestinal irritation subsides, you will, in a large majority of cases, find the liver voluntarily assuming its function, and convalescence will progress rapidly with little further assistance. But should the liver continue torpid, after the gastro-intestinal irritation has been relieved, it will then be proper to put the patient upon a mild cholagogue course of treatment, and the most appropriate medicine in this case which I have tried, is a pill, night and morning, of one-eighth of a grain of podophyllin, one-fourth of a grain of leptandrin, and a sufficient quantity of the extract of taraxacum.

Hepatic Disorder. Cases occasionally occur in which the liver is very seriously disordered. In some instances there is a great redundancy of the biliary secretion in the beginning, followed by a state of hepatic torpor; and the fever progressing, a congestion of the portal and hepatic veins follows, resulting, if not in inflammation, in a serious and sometimes very stubborn engorgement of the viscus; which remains to be treated after the malarial fever has been arrested. Or this condition of the liver may be the result of a high grade of fever, producing a tendency to local congestion; while a predisposition to hepatic disorder invites the determination of blood to the liver, even where the biliary secretion was not at first materially disturbed.

This condition of the system will be indicated by the tongue being husky and dry, and dark colored in the centre, while the edges may be moist and red; by the yellowness of the skin and eyes; by the condition of the urine, which is scant and very dark, almost black; and by the absence of bilious matter in the alvine discharges.

It will be recollected that I spoke, a short time since, of combining a portion of podophyllin and leptandrin with the antiperiodic remedies, under certain circumstances. Well, we are now considering the very condition of the system in which I should pursue that course. If, when called to the case, I found the symptoms I have just described, unaccompanied by much irritation

of the stomach and bowels, I should commence at once the administration of the cholagogue medicine, in conjunction with the quinine and iron; if the liver were not relieved upon the arrest of the paroxysms, I should continue it alone until the biliary secretion was reëstablished. The dose would be, in such a case, podophyllin one-fourth of a grain, and leptandrin one-half a grain. Or a pill composed thus:

| | | |
|----|--------------------------|-------------------|
| R. | Podophyllin | gr. $\frac{1}{4}$ |
| | Leptandrin | gr. $\frac{1}{2}$ |
| | Sanguinarin | gr. $\frac{1}{2}$ |
| | Ext. of taraxacum, q. s. | |

May be given every sixth hour until the cholagogue effect is produced. Whether the podophyllin and leptandrin be employed in powder, or the above pill be used, care must be taken not to produce a too active cathartic effect. Should the bowels be moved much the doses must be diminished. An emetic administered either before or after the arrest of the fever, will do much to arouse the liver and produce that general reëction in the system which is favorable to the result desired in this case; and where not specially contraïndicated by other symptoms, I have no hesitancy in resorting to the measure.

If the liver continue congested after the use of the medicines spoken of for a reasonable time (which, however, is seldom the case), the use of cups over the liver, followed by hot fomentations, will be of decided advantage. The surface should, in this case, also, be frequently bathed with broke water and whisky. The use of warm balm tea as a drink will generally be grateful to the patient, allay thirst, and promote diaphoresis. The diet should, of course, be very light and bland.

Upon a return of the biliary secretion there may be a tendency to overaction of the liver, and a bilious diarrhœa may follow, especially if there be considerable irritation of the bowels. This will generally be sufficiently restrained by the use of one-eighth of a grain of morphine, combined with two grains of the extract of catechu, or with four grains of the extract of Hæmatoxylon campechianum, once in two, four, or six hours, according to the urgency of the case.

Determination to the Brain. As stated before, while describ-

ing the modifications of remittent fever, we often meet with cases in which there is determination of blood to the brain, as indicated by heat and pain in the head, dilatation of the pupils, dullness of sight and hearing, with delirium, and it may be a tendency to coma. These cerebral symptoms may appear early in the disease, or they may supervene at a later period. After the arrest of the periodic fever, if these symptoms of cephalic congestion persist, measures must be adopted for relieving the brain. In fact, such palliative and revulsive means as shall not contravene the use of antiperiodic agents, will be proper at any period of the case, when these symptoms are present, though there is little hope of material relief, until the febrile exacerbations are prevented.

The treatment for this difficulty will have reference to a reduction of heat in the head, and a diversion of blood from the cerebral vessels. To effect the first of these indications, it is customary with authors to recommend cold applications to the head—as ice, ice-cold water, cold water poured from a considerable height, &c. To all cold applications, under such circumstances, I have serious objections, based, as I think, upon sound philosophy, as well as experience. The shock produced by the sudden application of cold to the surface must tend to produce a reaction, which will increase the very difficulty for the relief of which it is employed. The only way in which it is possible to prevent the evil effects of such a reaction, after commencing the use of ice or cold water, is to see that the applications are constantly so cold as to absorb the caloric as fast as it is generated; and all who have experienced the difficulty of doing this, and especially of having it done by others; all who have seen, as I have, the head of the patient swamped in a wet pillow, and cloths made steaming hot by the reaction, while the cold was still faithfully applied in the form of cloths wet in cold water, or ice melting and drenching the pillow, must, with me, object to such means, and seek if possible a better way. And there is a better way, and that is, to use warm water instead of cold, with the addition of alcohol or whisky, as an evaporating bath. This should be applied with a sponge or towel, and followed by a gentle fanning, to favor the evaporation. Here you have no shock, and no reaction is awakened; the pillow and bed of the patient are preserved

dry and comfortable, while the real temperature, not of the surface merely, will be promptly diminished to any desirable degree. Warm water (and the warmer the better, short of giving pain) is preferable, not merely because it does not shock the surface, but because it will the sooner evaporate, and thus, by assuming the aëriform state, conduct the caloric from the part with great rapidity. If any one desires to test the truth of this philosophy, let him take a ball of snow or ice in one hand, and have the other treated with warm bathing and fanning, as above directed, and he will not long remain unconvinced.

To meet the other indication, *pediluvia* of hot water, to which mustard may be added, will be proper, if the feet are cool. Sinapisms to the feet and hands are also well adapted to divert the circulation to the extremities. If the condition of the system will justify, hydragogue cathartics will be of much advantage. Cups or leeches may be applied to the temples and nape of the neck in urgent cases, and the blood may be retained in the veins of the extremities by means of ligatures applied to the arms and thighs, so tight as to interrupt the venous but not the arterial circulation.

I have now given you the leading features of my practice in the ordinary forms and modifications of this important disease. Other modifications and complications, and the anomalous phases which it may occasionally assume, must be treated upon general principles. It is impracticable for a teacher to detail every peculiarity which has been or may be observed as connected with a disease; and it is equally impracticable to describe all the minutiae of treatment which it may be proper to employ. Much must be left to the judgment, discretion, and, if you please, invention of the attending physician. The general outlines have been given of a mode of treatment which, if followed out and applied with judgment and assiduity, will seldom fail of success. The secondary affections which have occupied so much of our time, and which really constitute the principal, if not the only alarming features of the disease, will seldom give any trouble if you treat the disease in the beginning as I have directed; but should any of the local disorders before described persist after the arrest of the

paroxysms, they will scarcely fail to yield to the treatment I have suggested as applicable to each case.

Sometimes, however, in spite of all your efforts and measures, you will fail of accomplishing a cure ; or if you do not finally lose your patient, the case may assume a low congestive or typhus character, from which condition he will be raised with difficulty. Generally, cases of this kind may be traced to neglect of proper means in the early days of the fever, before structural lesions of the organs were produced, or, what is worse, to palpable maltreatment—such as the use of drastic purges and harsh emetics, or the abstraction of blood, all of which tend to weaken the powers of life, and give the disease a predominating power in the system. Such cases, I am sorry to say, are not limited to the patients of medical practitioners, who must bear the odium of unsuccessful practice, but very often the patient, anxious to avoid expense, resorts to calomel, or some domestic or patent purge, or other means equally injudicious, and having fairly installed the disease in his system, at last calls in a physician.

In other cases there is, from predisposition, a tendency to congestion and nervous debility which, in spite of medicine, degenerates into the low febrile condition of which I have just spoken. This condition is characterized by a dry skin, with occasional flashes of heat, a frequent, wiry pulse, an irritated state of the stomach and bowels, a contracted, red, dry, tremulous tongue, an anxious, sometimes slightly wild expression of the countenance, dullness of hearing, great restlessness, or it may be a tendency to stupor, low or incoherent muttering when partially aroused, involuntary muscular motions indicative of nervous derangement, a twitching of the extremities, which ultimately results in *subsultus tendinum*, picking at the bedclothes, or reaching unconsciously about, as if for objects in the air. In short, the case assumes all the important symptoms of, and may now be with propriety denominated, *typhus* fever ; it is therefore amenable, of course, to the treatment which will hereafter be directed for that form of fever. I will, however, take occasion here to say that this condition will not admit of much medication. You will, of course, be expected to do something continually, or your patient will lose confidence or become discouraged ; but let all you do be harmless, mild, and

soothing. The sponge bath to the whole surface, of warm water and spirits; mucilaginous drinks; a solution of ammonia, say ten grains, in four ounces of water, to allay thirst, stimulate slightly the capillary circulation, and to correct, in some measure, the secretions; gentle and bland enema to soothe the bowels, and, if they are much disturbed, a cataplasm on the abdomen, or a hot fomentation of hops, in case of much nervous disturbance, sinapisms to the extremities, if cold, and kindred measures, will be your reliance in this case, so far as medicine is concerned. Your main reliance, however, will be in the recuperative power of nature. Assist her where you are certain you can do so, but where there is doubt, withhold. Do not here resort to doubtful experiments, where a slight misstep may be fatal. For my part, I much prefer trusting to nature, where I am uncertain how to proceed. The mode of groping in the dark and striking at random has already done so much harm, that I feel anxious to see it universally abandoned. Where we know not what to do, let us do nothing; or, if we must do something, let us at least do no harm. Where our own experience, or that of others entitled to our confidence, warrants a measure, let us apply it judiciously and with caution. But in these delicate cases, where life is suspended by so slender a thread, which one ungentle touch may separate, let us never give up experience for theory or experiment.

This may be called empiricism: be it so. If by empiricism is meant a careful mode of practice, based upon experience and enlightened judgment, and guided by nature where science fails, let me be an empiric, rather than one of those who require experience, reason and nature, all to bend to science, so called, at whatever expense of health and life. I am not at all disposed to adopt the sentiments of a late celebrated Professor of the Baltimore school, who would advise his class when called to a patient, to first turn the old women out of the room and nature out of doors, and then go to work. Now I have no particular antipathy to the presence of old women in the sick room, nor do I object to receiving from them valuable information: an important practical truth has as much intrinsic value when received from the lips of an old woman, as when obtained from the most scientific doctor of medicine; and without nature in the house, I should feel very

much like closing my lips, and departing in silence: I should think I had no business there. If I cannot have nature in the vigor of health for my guide, let me be admonished by her feebleness to do no violence at least; and where I cannot hear her voice, let me follow her footprints.

Convalescence in protracted cases will be slow, and occasionally tedious; especially in those cases connected with much gastrointestinal irritation. It behooves you, therefore, to admonish your patients of the necessity for great care and circumspection, both in regard to diet and exercise, for a number of days after you think it no longer necessary to continue your visits. Without this, relapse may be feared, and will often follow.

The diet should, at first, be light but nutritious,—plain animal broths, ripe and well cooked potatoes, rice or farina, and stale bread, with a small portion of well cooked, ripe fruit, will be the main articles to be relied on; while very moderate exercise—at first about the house without fatigue, and as the strength improves riding in the open air—should be commenced with great care, and increased as the patient's strength and habit will admit.

Tonics are of great consideration in those cases where they can be borne. But in cases connected with a red tongue and accelerated pulse, few if any tonics will be tolerated, and those alone without stimulants. The *Staphilea trifolia*, or swamp dogwood, may be mentioned as one of this class, and may be given in such cases with entire safety, and generally with decided advantage. It may be administered in half ounce doses of the cold infusion, once in six hours. But in other instances, where there is much debility, with a slow pulse and pale tongue, more decided and stimulating tonics will be demanded. Under such circumstances the common gin bitters heretofore spoken of will be found a valuable and safe prescription; or the use of Scotch ale with the meals, if the bowels do not require aperients, will be sufficient.

LECTURE X.

CONGESTIVE FEVER.

Preliminary Remarks.—Dr. Armstrong's Views.—Synonymous with Typhus.—Malarial Origin—Not contagious—Mere modification of Bilious Fever.—Symptoms.—Treatment, Palliative and Radical.—Complications.—Gastro-intestinal Disorder.—Hepatic Disorder.—Treatment.—General Remarks and Directions.

It will not be expected that I shall be able to present you with all the phases and peculiarities of every case to be met with in practice. It will be sufficient if I succeed in giving you clearly the outlines, or principal features of the different forms of disease, as they come up for consideration. I have endeavored to describe to you as correctly as possible, the general character and peculiarities of remittent fever. But there are a few other phases of this disease, occasionally to be observed, which in many respects possess much practical importance, and I desire at this time to present them to you. And first, I invite your attention to what I have been accustomed to call

CONGESTIVE FEVER.

This term probably expresses more fully the condition of the system, and especially of many of the organs, than any other. This variety of fever is described in the books generally under the head of *typhus* fever, and on this account you may, perhaps, suppose that I am confounding the malarial diseases of this country with another of a peculiar and distinct character. But I do not believe there is any difference between that peculiar phase of malarial fever, commonly known in the West as congestive fever, and the *typhus* fever of the books. And this view is not peculiar

to myself; for although many, perhaps a majority of the authorities consider typhus fever to be a distinct and contagious disease, different in its essential character from all the diseases peculiar to the Western country; still there are, I am glad to say, some, who, depending on their own observations, and reflecting on what they have seen, have arrived at the same conclusion with myself, and fully believe that typhus is simply a modification of malarial intermittent or remittent fever; presenting symptoms common to both, and evidently referable to the same cause. And at what other conclusion can we arrive in view of the well attested facts? All who have much experience in these diseases know that intermittent and remittent fever frequently present all the symptoms of, or in other words run into, typhus fever. So also typhus fever sometimes terminates in, or assumes the peculiar symptoms of bilious remittent or intermittent fever. Dr. Armstrong (*Practice*, page 431,) recognizes precisely the facts of which I have been speaking. He says:

“In some parts of the world the remittent form of fever is called typhus fever; but in most places, the continued form of fever alone has that name applied to it. Typhus fever, as used by those who adhere to the nosological arrangements of Dr. Cullen, is an exceedingly vague term. Many persons adhere to a system founded upon words, not on things; on symptoms, not on conditions; and if you ask them for a real, and not a nominal, definition of typhus fever, they cannot give you one.

“But to speak the truth, we have nothing which approaches to a correct definition of typhus fever. That of Cullen is adopted and upheld by scholastic and collegiate authority, which almost always, lagging far behind the spirit of the age, sits in its monkish shroud, covered by the shade of ignorance, and starting like a guilty thing at the light that disturbs its repose.”

On page 435, Dr. Armstrong cites a case which finally led to a change in his views of the cause of typhus fever. The case cited is so perfectly coincident with my observations, and the deductions and remarks of Dr. Armstrong so nearly express my views, that I shall furnish you with another liberal extract:

“Six years ago, and shortly after I had published the third

edition of my work on typhus fever,* in which I had strenuously maintained the doctrine of human contagion, I met with a case of intermittent fever. In a few days the fever became remittent, and in a few days more it put on the continued character, and the patient died with all the most malignant symptoms of typhus fever.

“This case made a powerful impression on my mind, and I could not help asking myself whether it was not possible that the common ague of this country, the marsh remittent fever, and continued typhus fever, might be one and the same affection, modified by certain circumstances. I determined, at any rate, to reinvestigate the subject; for I suspected I might have taken up as a prejudice at college, the doctrine of contagion, and might have acted on that prejudice as a sacred truth. Few men have more contemptuous views of blackletter learning, and the dogmata of schools; yet the opinion clung to me closely, and I parted with it gradually, if not with regret. I investigated the subject afresh, resolved, if possible, to arrive at the plain truth, whatever it might be; and in six years the result has been that I am perfectly convinced that what is commonly called typhus fever, does arise from malaria or marsh effluvia; that it is intermittent, remittent and continued; that it arises from infection, and that it does not originate from human contagion. It should be remembered that infection is not contagion. It is a state of atmosphere produced by the surface of the earth and the air, which is limited to a certain space; and persons breathing it are subject to certain modifications of a similar disease.

“It is a very humiliating thing to the human mind to detect long established error; but it has these two advantages;—it gives a man the satisfaction of possessing the truth at last; and besides this reward, it makes him more cautious in the admission of prejudices for the future. Nothing can satisfy the human mind which contemplates the phenomena of nature around it, but the conviction of possessing the truth. The longer I have lived, and the nearer I have advanced step by step to the grave, the

* Dr. Armstrong occupies a very respectable position among the medical authorities, having been an eminent lecturer in a celebrated institution in London, and author of a work on typhus and scarlet fever.

more I am convinced how small is the amount of that I know ; and while I feel the most perfect humiliation that I know so little, I am bound to make the most public acknowledgment of the full extent of my ignorance. In fact, having discovered my error, the only reparation I can make, is by such an acknowledgment."

Under convictions produced upon my mind by personal observations of the nature and cause of disease, it has been my duty from time to time, to make confessions similar to that just quoted from Dr. Armstrong. And although the errors of prejudice and education were, as he says, parted with " gradually, if not with regret," and although these confessions were humiliating to me as a man and as a physician, yet when truth, clearly ascertained, has required it, I believe I have always made the proper acknowledgment of my previous errors. And in addition to the personal advantages, derived from the change in my views, of which Dr. Armstrong speaks ; " the satisfaction of possessing the truth at last," and the benefit of caution " in the admission of prejudices for the future," I have enjoyed and still enjoy the gratification of believing that this professional humiliation will result, in some degree, at least, in securing health and prolonged life to many of my fellow beings.

Dr. Armstrong further says : " Sometime ago a family were brought into the Fever Hospital with typhus fever. The account they gave of themselves was, that an individual next door had fever, and that they visited him and caught the disease. Human testimony, however, is not always to be depended upon. The name of the family was Jay, and they lived in White Square, Clapham. The case of fever next door was one of scarlet fever, and had occurred four months previously. On further investigation of the cases of this family, I found that all but one originated in intermittent and remittent fever. Running round the whole of this square is an open common sewer ; and if typhus fever occur in Clapham, it is sure to be in that square."

Upon precisely similar testimony to that above stated, in regard to the mode of contracting the disease by this family, are based many supposed facts, and facts too which are adduced to sustain theories and modes of practice. Let this impress upon your minds the infinite importance of care in your investigations of the

history of any disease, before a final decision is made, as to its cause or character.

Dr. Armstrong further says: "In one part of Norfolk there is a district, of which several thousand acres are sometimes covered by a continuous wave; and when the water subsides, leaving the slime exposed to the sun, then continued, remittent and intermittent fevers occur very remarkably. In the period I have mentioned, since April, 1824, all these parts were under water; and while that was the case not a single instance of typhus fever occurred."

After thus illustrating and demonstrating, by the foregoing and many more examples, the malarial origin of typhus fever, Dr. Armstrong proceeds:

"I trust, then, that I have shown, that what we commonly call typhus fever originates from malaria—from an infection, and not from a contagion. The subject still involves another question of great importance, which is this: Does it, or does it not, become contagious? Does it acquire the additional property of communicability? It requires to be proved, in short, whether diseases arising from infection can become contagious," &c.

"Now," continues Dr. A., "though I would not take upon me, till I have seen and reflected more, to say positively that typhus fever is not contagious, yet I doubt the correctness of the doctrine exceedingly. Nay, I would say that if typhus fever be ever communicable, it is an exception to the general rule—an anomaly in the course and common character of this affection—an occasional aberration from a general law of nature.

"I could mention many facts in proof that typhus fever is not communicable by contagion."

Among the cases recited by Dr. A. in support of his opinion of the non-contagious character of the disease, may be found the following:

"I attended," he says, "a gentleman who was dying of typhus fever when I saw him. His wife read my looks more distinctly than my language, and affectionately pressed her husband again and again to her lips. But though his teeth were crusted with dark sordes, though he had almost all the most malignant symptoms of typhus fever, and though his wife had been previously

exhausted by night-watching as well as by mental anxiety, yet she had no attack of typhus fever.

“I saw a child laboring under typhus fever, of which it was thought to be dying, although it afterwards recovered ; but though the father of this child kissed it again and again without any precaution, yet he had no attack of the typhus fever. I have known many instances of infants at the breast laboring under typhus fever, in which the mothers had no attack of that affection.”

I desire to say in this connection, that I would not be understood as comprehending in this discussion the disease termed *typhoid fever*, by modern authors ; as I am entirely satisfied that the latter disease is distinct in its character, and produced by a different cause. And I will say, also, that while I agree, in every particular, with Dr. Armstrong, in regard to the identity of typhus fever, as generally described, and marsh malarial fever, yet I feel confident that many of the cases described by him were, in reality, typhoid fever ; as the peculiarly characteristic symptoms of that disorder most clearly peer out in the history he has given of them, although the distinction between the two forms of disease was not recognized by that truly original man. The anatomical developments and diagnostic symptoms had not, at that time, been so clearly pointed out by any author, as they are now ; and practicing, as Dr. Armstrong did, in the midst of the two diseases, and often finding them to coëxist, it is not a matter of surprise that the distinctions which more extended investigations have shown to exist, were not detected by him. In fact, it could scarcely have been expected of one mind, to accomplish more than he has done, in divesting such a subject of its errors, and clearing away the rubbish by which it was obscured.

As we shall discuss the subject of typhoid fever at a future time, I will not now dwell upon it.

The question involving the contagious or non-contagious character of typhus fever, is indeed one of much importance in practice, and is replete with interest to the human family. If regarded as contagious by a community, its appearance strikes terror into most minds, and very often the sick are avoided and neglected by relatives and friends ; and the consequence is, much unnecessary suffering and misery ; and not only so, but a very great increase in the

mortality. Hence, if you shall, upon due investigation and reflection, be convinced, as I have been, that the doctrine of contagion, as connected with this disease, is an error, you will, of course, see the importance of impressing the fact upon the minds of community. Here, however, you will find great difficulty, for mankind cling with great tenacity to old prejudices and long cherished opinions, however false and pernicious; and having been taught to "believe in the contagious nature of typhus fever," in the language of Dr. Armstrong, "many would deem it criminal even to question that creed."

First, however, examine this subject thoroughly—hear, read, and investigate, until you are confident you have the truth—and I believe you will be prepared to agree with Dr. Armstrong, that typhus fever is not communicated by contagion. Of the correctness of this opinion I have not a remaining doubt. That it is propagated by infection none will deny, but there is a great difference between infection and contagion.

I have seen a whole family suffering with typhus fever where none of the neighbors took it, although they were present much of the time. In fact, I have not seen any evidence that this disease is ever contagious; I mean such evidence as rests upon well attested facts going to establish the doctrine—such evidence as that which fixes the character of contagion upon small-pox, measles, or even scarletina, though the last mentioned disease is not as uniformly and certainly contagious as the other two. The general rule which applies to diseases which are unquestionably contagious is, that an individual who comes in contact or close proximity with one who has the disease, will contract it, let the atmosphere be ever so free from morbid influences, except those produced by the presence of the sick person. Where an unprotected person escapes, after such exposure, the case is an exception to the general rule; but if typhus fever be contagious, the exceptions far outnumber the cases in which there is even the appearance of communication by contagion.

Another peculiarity of contagious diseases may be mentioned, which does not pertain to typhus fever; and that is, the fact that one attack generally protects the individual from a second. There are exceptions to this rule also, in all diseases; but the

system is never secure from future attacks of typhus fever, no matter how frequently it may have suffered from the disease.

From all that has been said, I feel safe in assuming the positions which I have taken, namely, that typhus fever is not a contagious disease, distinct in cause and nature from our Western malarial fevers, but that it is only a modification of bilious or remittent fever, resulting from some peculiar condition of the system, constitutional predisposition, or from surrounding circumstances.

This congestive or typhus form or modification of bilious fever may usually be recognized by the appearance of the tongue and attendant symptoms, differing, in some respects, from those of ordinary bilious fever. In the most distinctly marked cases, you will find a dry, swollen, and crisped tongue, after the disease is fully developed; a pungent heat of the body, and an exceedingly dry, husky, and, as it were, parched feeling of the skin; a pulse full, bounding, and tense, varying in frequency, in different cases, to a very great extent; with all the usual symptoms of febrile action. The secretions are disturbed, respiration difficult, the patient probably unable to breathe at all through the nostrils, and the tongue so dry that it is impossible to protrude it from the mouth. But you will, of course, in this as in other affections, find much variety in the symptoms of different cases, and, as has been remarked before, you must not expect me to give a description which shall embrace all the minutiae of every case. A general outline of the disease, with some of the particular symptoms that prevail in most cases, is all that can be given, and, I suppose, all that you expect. If you exercise that thought and discrimination which should characterize the investigations of every physician, I am willing to trust to your sound judgment to determine the true nature of any case of this kind; and I have no fears that the views I have presented will fail to be verified and sustained by the conclusions at which you will arrive.

The appearance of the tongue to which I have referred, I regard as an indication of *congestion of the liver*. The edges may be exceedingly red, while the whole surface is dry and cracked, and perhaps bleeding and swelled. This appearance, I say, indicates engorgement, if not inflammation of the liver; and the

engorged and swelled condition of the organ will often be manifest upon examination of the right side below the ribs. In severe cases, there will be pain upon pressure in that region.

In the winter we often find these symptoms in connection with those which pertain to congestion of the lungs; and post mortem examination in such cases proves that both the liver and lungs are involved. The pulmonary congestion may be known by the cough, bloody expectoration, and dark sputa, and by the sounds obtained by physical examination—percussion giving a dull, heavy sound, while auscultation detects the bronchial respiration. But as these symptoms will be more minutely detailed when we shall speak of inflammatory diseases of the chest, we let it suffice to have said thus much here, and pass to another point.

There is a peculiarly dull, sleepy expression of the countenance accompanying this congestive or typhus fever. Frequently both cheeks are red and swelled or bloated, giving a bright, glossy appearance to the skin; the eyes are suffused, and the patient is in a stupid, obtuse condition, free, however, from any disease of the brain, as is evident from the ease with which he may be aroused from the sleepy state.

Such now is a brief outline of the distinguishing symptoms of congestive fever. I have not deemed it necessary to repeat the symptoms which characterize this as a periodic, malarial disease; so much has already been said on that subject, that you can not need any further description of those unmistakable peculiarities which distinguish this class of diseases. Indeed, the descriptive remarks I have just made are, to a great extent, a repetition of what was said in connection with the modifications and complications presented by intermittent and remittent fever; the principal difference being that, in the modification we are now considering, these attendant difficulties are more embarrassing, the symptoms more unyielding, and the depressing force of the morbid influences much more intense. It may also be remarked, that these collateral affections, and especially that of nervous depression, appear earlier in congestive than in remittent fever; and the tendency to continuous febrile action is rather more prominent; yet in every case there will be discoverable the rise and fall of the fever,

corresponding perfectly with the regular periodical paroxysms of simple malarial fever.

As is the case in remittent fever, so in the disease we are now considering, there is a tendency, unless the disease be arrested, to degenerate into a low form of *nervous continued* fever. It was stated in regard to bilious fever, that harsh treatment, as drastic purging and active depletion, was very likely to bring on this asthenic condition. The same is peculiarly true in the present instance, and, even without any such cause, the fever in this case, with its subsidiary local affections, is very likely to bring on a general state of innervation, characterized by the low, weak, stupid condition which has given the name *typhus* to this modification of fever.

Proper treatment early in the disease, by which the paroxysms shall be arrested, while the strength and vitality of the system are preserved, will generally remove the whole disease together, or at least reduce it to the form of an uncomplicated local disorder, easily controlled by proper treatment.

Sometimes, however, this is not the case. Owing to the overpowering force of the morbid cause, or to a peculiar susceptibility in the patient, the innervation persists, even after the paroxysms have been promptly arrested, and all apparent local engorgements relieved, or appropriately treated at least. This condition I shall now attempt briefly to describe.

The skin in this congestive form of the disease is dry, generally cool, with occasional flashes of heat. Sometimes, however, there is for some time a persistent, pungent heat of the surface, but followed finally by a cold, clammy condition, indicating great deficiency in the capillary circulation. The extremities are generally cool, sometimes cold. The pulse is frequent, with very little force, although it has a wiry, resisting character; and as the disease continues, the pulse increases in frequency while it diminishes in force. The tongue is usually brown and more or less dry, especially in the middle; or it may be clean, smooth and glossy, assuming an appearance similar to raw beef. Sometimes it becomes dry, contracted, curled up, as it were, and very tremulous. The teeth in many cases become covered with a dark sordes, which even extends over the gums and lips. The stomach

and bowels are generally irritated, causing often an intolerance of the slightest nourishment, and not unfrequently there is diarrhoea. The evacuations may be light colored, though they are generally dark and very offensive, especially where procured by medicine. The abdomen is generally flat or even concave, and often very sensitive to pressure. The urine is hot, scanty, and often very highly colored. The nervous system early becomes deranged in this disease, and the characteristic symptoms of nervous disorder are more and more developed as the disease progresses. There is often headache, either constant or occasional; a slight wandering of the intellect, especially on waking; the organs of sense are blunted; the muscles are observed to twitch involuntarily; and the patient is uneasy and restless, or otherwise inclines to stupor, attended with an oppressed respiration. These nervous symptoms become more and more marked, as before stated, and then we find the patient in a state of coma, perhaps, or if not, there is low, muttering delirium, with *subsultus tendinum*, and a constant picking and reaching with the hands.

The *treatment* of congestive fever is now to be considered, and as this disease is but a modification of malarial remittent fever, you will of course expect the treatment to be similar to that directed for the latter. Treatment is the paramount subject connected with the discussion of every disease, it being the principal object for which investigations and researches in the science of medicine are commenced and prosecuted. Every other topic should therefore be considered by the medical student as secondary in consequence to a scientific, rational, and successful method of treating disease, and other subjects should rank as important in exact proportion as they prepare him for successful practice in the healing art. To the student who studies for the sake of science merely, whose object is solely to store his mind with knowledge, with no purpose of becoming a practitioner, the remark just made may not, perhaps, apply; but where the individual proposes to take human health and life into his charge, nothing, surely, will be of so much consequence as a thorough practical qualification for his high responsibility. Therefore, while I would have you always on the alert, let the topic of discussion be what it may—for every thing connected with your profession is highly import-

ant—I would claim your special attention when the subject of treatment is on the tapis.

In prescribing for this affection, as in the case of remittent fever, the first indication is the removal of the malarial influence, which is to be accomplished by the exhibition of the antiperiodic remedies. Here, also, I disregard all complications, in reference to the administration of these medicines. Being fully satisfied of the presence of malarial influence in the system, I come in at once with the proper means for its elimination, notwithstanding the existence of congestion or inflammation; though, if deemed necessary, I combine with the antiperiodic remedies such measures as will tend to relieve the local engorgement. You may think it dangerous, gentlemen, to administer the quinine and iron where there is congestion; and I have seen the time when I should have regarded it as an act of madness; but I must credit my own senses; and a long course of observation and experience in the management of this grave form of disease has convinced me of my former error, and of the entire safety and utility of my present mode of treatment. I have never seen a case of congestion aggravated in the least by the use of these remedies, although given in almost innumerable cases where the symptoms of that condition were unequivocal, and without premising any treatment for their removal. As before remarked, I have often combined with the antiperiodic, other remedies, with a view to reach and remedy the local affection, but I never delay the quinine and iron to allow time for depletion or evacuation, or any other preliminary measures.

Where the stomach is loaded I administer an emetic, provided I can do so without interfering with the administration of the antiperiodic remedies during the first remission. This measure, under such circumstances, relieves the stomach of accumulations, equalizes the circulation, and secures for the next medicine a more perfect influence in the system. And here very much depends upon the choice of an emetic agent. If you give one that tends to produce local inflammation, you will always aggravate the case; but if you employ an agent that is quick in its action, and that tends to determine the circulation to the surface, and diffuse it throughout the system, you will accomplish an important desid-

eratum. The best emetic that I am acquainted with, for such purpose, is an infusion of *Eupatorium perfoliatum* (boneset) and *Lobelia inflata*; half an ounce of each to a pint of water; given in doses of a tablespoonful every ten minutes. Or the acetous tincture of *Sanguinaria* and *Lobelia*, in tablespoonful doses, every ten or fifteen minutes, is a very excellent emetic. In giving either of these prescriptions, direct the patient to drink freely of boneset tea, and continue to repeat the dose as prescribed until free emesis is produced. It is as important for you to know how to give an emetic, as it is to know what to give. If the first dose come up immediately, give another, and repeat it until you completely evacuate the stomach. After the first dose, the stomach gradually becomes accustomed to the medicine, and you may have to give several doses before vomiting will be produced to the extent desired; but, I repeat, persevere until the stomach is emptied.

There is no danger in administering either of the preparations I have mentioned, to the extent of producing three or four active evacuations; and where the indication exists, and time will permit, I would not fail to employ this measure. Still I would lose no time for that purpose; but should give the sulphate of quinia and prussiate of iron, three grains of each for a dose, every two hours during the very first remission. If first called to a case at the decline of an exacerbation, and I found the stomach loaded, I should promptly give the emetic, but if the remission was being lost, I should defer the emetic until the decline of the next hot stage, which I should shorten by its administration. Indeed, it sometimes happens, that the fever yields at once, and disappears without a subsequent exacerbation, under the influence of the quinine and iron, leaving you ample time to remove accumulation, relieve congestion, or meet any other special indication. Generally, however, the first remission is too slight and too short, to allow your medicine to establish its influence in the system, and the fever will rise again. Then soothe and palliate the febrile excitement, until the fever begins to decline; then give the emetic, if indicated, and follow at once with the antiperiodic powders. You will now most certainly have a palpable and protracted remission, if not a complete apyrexia; and this will afford time

for the administration of so much of these remedies, as very probably to dismiss the fever entirely. If not, proceed as before until the paroxysms are arrested. The emetic, however, will not need to be repeated, if thoroughly employed at first.

The palliative measures for the hot stage, will of course be entirely similar to those recommended in bilious fever. Bathe the patient in warm water, to which you may add a little alkali, and also whisky or alcohol. To relieve pain and allay nervous irritation, a gentle anodyne may sometimes be proper, where the brain is not affected, as the sudorific powder or tincture; though generally it is preferable to avoid opiates. The bathing, and where the stomach and bowels are distressed, fomentations or cataplasms to the epigastrium and abdomen, will generally be sufficient. If the patient is anxious to be medicated, as is often the case at such times, a harmless placebo will meet this indication.

Thus far the treatment you perceive is substantially the same as that suggested for remittent fever. Both affections being produced by the same cause, marked to a great extent by the same features, the one being indeed but a modification of the other, they must of course be amenable to the same remedies, so far as regards radical treatment. For in both cases malarial fever is *the* disease, the arrest of which is the first indication, and you are now, I believe, pretty thoroughly instructed in the mode of accomplishing this important object. Bear in mind that no condition of the system, or any of its organs, contraïndicates the use of the antiperiodic measures; the only question being here, as in bilious fever, one of expediency, or rather of choice, as between the exacerbation and remission, for the exhibition of these measures. Still, this form of disease presents very often, difficulties of no trifling character, in the form of local, organic and complicated disorders and engorgement, which must receive special attention.

Gastro-intestinal irritation, or even inflammation, is not an uncommon accompaniment to this fever. Especially is this condition apt to supervene where the patient has been actively purged in the beginning, whether by himself or a physician. Hence it is, that I so studiously eschew cathartics previous to arresting the par-

oxysmal fever. Where the bowels are somewhat irritated, a cathartic is certain to aggravate the irritation, and where no symptoms of this condition are present, they very generally make their appearance after an active purge. But where the alimentary track has not been disturbed by such means, I have often seen very serious symptoms of such irritation subside with the arrest of the periodic fever. This may seem strange to you, but it is no more strange than true.

This gastro-intestinal disorder is the most difficult complication incident to this fever. Very little reflection will convince you of this; for in this affection the very surface to which you must apply your remedies for the relief of the system, is so far diseased as to tolerate with difficulty your medicines, and when they are retained, they are not likely to act upon the system with the promptitude and certainty which might be expected were the stomach and bowels unaffected. Hence, the importance of managing such cases with the utmost care and gentleness. Avoid all harsh or irritating internal measures. It may even be necessary in some cases, to omit the prussiate of iron, in the antiperiodic powders, and give the quinine alone, as the iron sometimes increases gastric irritation in cases of great sensibility: no such danger, however, need be apprehended from the use of quinine. After the fever is arrested, if this condition of the intestines continues, the same course of mild treatment must be pursued, as recommended for this complication with bilious fever. The bread and milk cataplasm to the abdomen, sinapisms to the extremities, and bathing the whole surface, are indispensable external measures; while internally, the patient should take mucilaginous drinks, and such light diet as rice or barley water. Emollient sheathing injections will be of much service, to which may be added laudanum, in case there is diarrhoea; or if opium be contra-indicated, some astringent may be substituted, as tannin or infusion of galls.

Torpor of the liver will be denoted by the symptoms usually attendant on that condition. Yellowness of the eyes and skin, the presence of biliary matter in the urine, and its deficiency in the alvine evacuations are the leading symptoms of hepatic torpor. These symptoms are not to be overlooked, nor slightly regarded.

You should see and examine the patient for yourself, and not trust to the nurse or other person for even a description of the discharges, but examine them also for yourself. You will often be told that the stools are yellow when there is no bile in them, that they are "very dark and bad," when they are good bilious discharges; an ordinary loose evacuation will be described as watery or vice versa. In fact, I should hesitate to prescribe upon the observation and description of a *physician*, unless I knew that he had a more full appreciation of the importance of such examinations, and was accustomed to more minute and correct investigation in such cases, than are the majority of practitioners.

The condition of the liver is of great importance in the treatment of this disease, and every symptom pointing to that organ should be carefully observed. The condition of the alimentary canal must also be considered, in connection with that of the liver, when you come to make your prescription for the case; for no matter how torpid or how much engorged or inflamed the liver may be, it must not be relieved at the expense of aggravated irritation of the stomach and bowels. Where gastro-intestinal irritation coëxists with hepatic disorder, the medicines designed to act on the liver, or any other glandular organ, if given at all, must be administered in very small doses, cautiously repeated. Thus you may avoid an increase of intestinal irritation, while the system, under such circumstances, will respond even better to these gentle, kind calls, than to more harsh and peremptory measures.

The emetic in the commencement, as mentioned while speaking of the treatment for arresting the paroxysms, will do much towards relieving the liver if so early involved, and also to prevent subsequent disorder of that organ. The combination of podophyllin and leptandrin with the quinine and iron may often be of much service, having at the same time due reference to the state of the stomach and bowels, in fixing the dose. But this part of the subject was sufficiently elucidated in the treatment given for bilious fever and its complications. The directions there given will fully apply to the present case, previous to the arrest of the malarial fever.

After the paroxysms have been interrupted, the symptoms of

torpor, and perhaps congestion of the liver, frequently remain. Here, then, you have a local disease to treat, unattended by the embarrassing influence of daily exacerbations, and an affection towards the cure of which you will now direct your efforts. Where there was nothing in the condition of the stomach and bowels to prevent, I have given, in such cases, large doses of podophyllum, for the purpose of producing its emeto-cathartic action, and I have seen grave cases promptly relieved in this way. But occasionally the medicine did not act as an emetic, and then it rather aggravated than relieved the case. I have sometimes repeated it, with the addition of ipecacuanha, but I cannot recommend this as the best course. The use of podophyllin and leptandrin in the proportion of one part of the former to two of the latter, given in powder, or, which is better, in pill, by combining them with extract of taraxacum, in small doses, repeated, so as to act on the liver without disturbing the bowels, is both safe and reliable. The liver will respond to the alterative action of these remedies, when thus given, with more readiness than to that of calomel, especially where there is intestinal irritation.

Very frequently the torpor of the liver is the result of gastro-intestinal irritation, as was stated once before, and the soothing, mild treatment proper to be employed, and which has been recommended in that case, is often all that is required. The hepatic torpor being dependent on the irritated state of the bowels, that organ resumes its function as soon as the intestinal disorder is relieved. But if the liver remain inactive after the bowels have been in some measure restored to health, then the podophyllin, leptandrin, and taraxacum are the remedies to be relied on, administered as above directed.

When there is much congestion or inflammation of the liver, and this persists after the paroxysms have ceased, the chief reliance, beyond a proper regulation of the bowels, must be on external applications; such as cupping over the location of the liver, followed by hot fomentations; sinapisms to the extremities, and the other usual means for equalizing the circulation.

If, notwithstanding the arrest of the periodical fever, and the use of proper remedies for persistent local determination or inflammation, the case should run on into a low form of fever, known

generally as congestive or typhus fever, your professional skill is very likely to find a severe test. Your calling now will not be so much that of a prescribing *physician* as an attendant *guardian*, to watch the condition of the patient, and prevent harm being done by medication. Your only course now is to soothe, encourage, and in some measure sustain your patient, waiting for the recuperative powers of the system to react. The lingering fever should be allayed by the warm alkaline bath, the bowels soothed by emollient injections, so medicated as to keep them in a quiet, soluble condition, and the soothing application of the bread and milk cataplasm, as before directed.

Under such treatment many cases will gradually yield, the symptoms softening down, and the powers of the system being restored in a short time. Others will linger in this typhus condition for many days, perhaps weeks, and finally recover by very slow degrees. Harshness in such cases will not do; and although you have removed the primary disease, and, to a great extent, all the active local disorders resulting from it, you may still lose your patient by want of care in this respect. A single drastic dose of medicine, whether given under or in opposition to your advice, may decide the case fatally. Continue the bathing and injections, and as it may satisfy the patient or the friends to give medicine by the mouth, let the patient take occasionally a weak solution of carbonate of ammonia; this will soothe the stomach, and afford all the stimulation which the case will bear, and serve, at the same time, as a satisfying placebo.

Let the diet be very mild and bland, especially during the early part of this stage of the disease. Rice, barley, or bread water, tea poured over toasted bread or crackers, will be as strong diet as should be allowed. Should the case be protracted, however, for ten, or fifteen, or more days, more substantial food must be given. A healthy man cannot live much beyond twenty days without food, much less one whose vitality is extensively reduced by disease. I have no doubt that these low fevers have been protracted for want of nutriment.

After the skin becomes cool and the febrile action ceases, stimulants are often required to enable the system to react with sufficient energy to commence the process of repair. I have been

accustomed, in this condition, to direct the use of ale diluted with water, in such quantity as the case seemed to require. I prefer this to brandy or wine, as it is less stimulant, and more soothing, nutritious, and tonic. Another gentle tonic, and one which I can not too highly recommend in these cases, is a decoction of the bark of *Staphylea trifolia*. This is a pure, unirritating tonic, that will not aggravate any morbid symptoms which may remain, but will give strength and tone to the system. The decoction may be given cold, in doses of a tablespoonful once in two or three hours.

LECTURE XI.

BILIOUS FEVER.

Modifications of Bilious Fever continued—Pernicious Fever—More at the South—Symptoms—Character—Symptoms continued—Condition of the Bowels; Blood—Diagnosis—Prognosis—Prof. Wood's opinions—Treatment—Two indications, produce reaction and prevent subsequent paroxysm—Treatment continued—Wood's Treatment—Concluding Remarks—Prof. Bell's cases and Treatment—Remarks.

We are not yet done with bilious fever and its modifications. It may be asked why we describe so many modifications of this disease, if it is always essentially dependent on the same cause? I answer, that the same cause, operating under different circumstances or in different constitutions, must necessarily produce different symptoms. If all human constitutions were precisely alike, and always subject to exactly similar influences, none of those varieties and complications which are so perplexing to the practitioner, and which now engross so much of our time, would be encountered. The course of a disease in one individual would then be a correct type for the progress of the same disease, whenever or wherever found. But we must take facts as they exist, and since we know that even in the same individual, a disease presents at one time a very different train of phenomena from those exhibited at another time, and under other circumstances; since, more especially, different persons similarly situated in every respect, present such variant symptoms under disease evidently induced by the same cause; and since these diversities and modifications are so likely to mislead and embarrass the inexperienced

practitioner ; I deem it of the utmost importance to dwell at some length upon this part of the subject. I desire, if possible, to prepare you to anticipate, and meet successfully, those changes, modifications and complications which you are sure to encounter at times in the treatment of malarial fevers. Hence I endeavor, even at the risk of being thought tedious, to describe to you the bold, prominent, I might say singular characteristics of each modification, leaving the minor and less important shades of difference to your own observation and discrimination.

The next modification of malarial fever to which I call your attention is what the authorities, especially the recent ones, call **PERNICIOUS FEVER, or PERNICIOUS DISEASE.**

This form of the disease occurs more frequently at the South than in this part of the country. It is occasionally met with in the Middle States, but it is not so frequent nor so malignant in its character as in the more Southern regions. I have myself met with a number of cases of this kind, and should not do justice to the subject, nor to you, if I failed to present the symptoms observed, and the treatment pursued in those cases.

There is no question in my mind that this is primarily and essentially a disease of the nervous system. There is an enervated, I might say, almost paralytic condition of the vital functions, attended by all the symptoms which we would expect to find under such circumstances.

The characteristic symptoms are, coldness of the extremities, which often extends over the whole surface ; in other cases, the skin on the body will have a hot, pungent feel, while the hands, feet and face are cold and really deathlike. There is a peculiar shrunken, livid appearance of the skin on the face and extremities. The features have an expression of apprehension or alarm, even when no such emotion is present, and the hands and feet look shriveled, and the skin is corrugated, resembling the hands of a washerwoman when they have been long soaked in soap-suds. The tongue is usually white or pale ; in some cases dry, with a peculiar pale and shrunken appearance ; in others it is moist, and perhaps little changed from the normal condition. Sometimes the paralyzed condition of the nervous system disables the patient from protruding the tongue, and you have to press down the chin

to see it. This, however, is not generally the case: in most instances the patient is able to talk, and you can obtain a history of his case from his own lips. In other cases there is stupor, approaching a comatose condition,—the patient being aroused with difficulty, if at all, during the height of the paroxysm.

The pulse is usually very small, irregular, and sometimes fluttering: it may be hard and corded, but most generally it has very little force, being easily arrested under the finger. In some cases it is intermittent; in others, extinct at the wrist. When exceedingly rapid—120 to 160 a minute—it shows a serious and formidable attack.

The stomach is in some instances very much disturbed, as evinced by continual retching and vomiting, and this is one of the most troublesome symptoms with which you will have to contend. The evacuations from the stomach are rarely bilious, but generally consist of what has been taken into the stomach mixed with frothy mucus, tinged in some cases by streaks of blood.

The condition of the bowels, also, varies in different cases. In some the evacuations are almost incessant, in others there is obstinate constipation. The character of the evacuations, too, differs essentially in different cases. These are sometimes of a watery, choleroïd nature; in other cases they have the appearance of bloody serum, resembling water in which flesh has been washed.

The thirst is exceedingly great, but water is rejected almost as soon as swallowed.

The *respiration*, among other functions, is essentially involved. In some cases it is hurried, frequent and panting; while in others it is irregular and sighing. This last may be regarded as a very urgent symptom, denoting a grave grade of disease, and foreboding a fatal result, if allowed to continue long.

Extreme restlessness is a symptom almost constantly present in this modification of the disease,—more so, perhaps, than in any other form of bilious fever. The patient is incessantly tossing about, and tumbling from side to side.

The symptoms just described present the essential character of malarial disease. In fact, in the incipient stage, and frequently during the early exacerbations, it is not to be distinguished from a violent attack of intermittent or remittent fever.

But whether the *pernicious symptoms* appear at once, or are more gradually developed, they are nevertheless subject to the laws of periodicity. The type may be quotidian or tertian, possibly quartan, or double quotidian. The paroxysm having reached its height, continues for a longer or shorter time, and then the symptoms gradually subside, the system rallies, and a reaction more or less perfect is established. The patient is now comparatively comfortable,—sometimes, indeed, appearing in an almost healthy condition. But when the period of the disease returns, the same train of phenomena reappears, generally aggravated in intensity, to be followed, if the patient survive, by a remission less perfect than the preceding; and thus will the case progress by regular periods, and increasing malignancy, until arrested by remedial measures, or the patient sinks under the disease.

The bloody serum which I have said escapes from the intestines in some cases of this kind, is not a secretion of the mucous membrane, but is the result of a kind of *exosmosis* or transudation through the enervated and relaxed tissues of the mucous surfaces. It is altogether similar to the percolation through the tissues that takes place after death, and, by experiment on the membranes out of the body, it is clearly ascertained to be the result of a softened condition of the tissues. Nor is this the only disorganization to be apprehended. The blood is often partially decomposed; the liver and spleen either engorged with blood, or softened and partially disorganized. There is seldom any structural lesion of the thoracic viscera, but the brain and spinal cord, with their membranes, give evidence that the disease has spent its chief violence on these central organs of the nervous system. The membranes are injected, the brain increased in density, and the cortical portion, especially, deepened in color, while there is usually an effusion of serum in the ventricles.

For the purpose of forming a *diagnosis* in this modification of bilious fever, the leading symptoms already described are sufficient. The *prognosis* must, of course, regard the case as formidable and fraught with danger,—almost certain to prove fatal, unless promptly relieved. The only question of importance, then, for the practitioner, is whether the patient will live through the present paroxysm, or will probably sink under it. The chances

of success are much increased if you can secure an intermission, or even remission, in which to administer your remedies. If, from the history of the case, and the present symptoms, you are confident a remission will follow, you have reason to hope that prompt measures may prevent, or at least weaken, a subsequent exacerbation. But if there is reason to fear, from the progress of the disease, the gravity of the symptoms, and exhaustion of the patient, that the present paroxysm is likely to prove fatal, no time should be lost before the employment of radical measures. Where there is doubt, even, as to the character of the attack—as, where you cannot learn its history, the number and duration of previous paroxysms and remissions, the medicine already administered, &c., it is best to resolve such doubt in favor of immediate action. One of the most urgent cases I ever saw, was one in which I feared to wait for a remission. There was a very general suspension of nervous sensibility, yet the antiperiodic medicines were administered under these circumstances with the most happy results. And, as I have said in a former lecture, there is good reason to question the propriety of losing a moment in any case, under the idea that these medicines may not be administered with propriety during any stage of the disease. Deference to custom, the impression that it is more agreeable to the patient and his friends to give the medicines during a remission, and that a less dose will then suffice, have induced me to prefer that stage for the exhibition of antiperiodic remedies; but it is a mere question of expediency and convenience, which should have no influence in an urgent case.

Formerly, under the delusion that congestive fever, as this malady was then called, depended upon inflammation, it was the practice of many physicians to bleed; but the fatal tendency of such practice, if it did not convince them of the fallacy of their theory, soon drove them to the employment of very different measures. And now, although you find most of the recent authorities still insisting on the necessity of an intermission before the administration of quinine, yet you will perceive that they do not require you to remove local lesions previous to its exhibition. I am gratified, however, to find my views and experience in this disease substantially corroborated by Prof. Wood, of Philadelphia.

In his "Practice," Vol. I., page 293, speaking of the treatment of "Pernicious Fever," he says :

"Sulphate of quinia may be advantageously employed, even in the paroxysm, before reaction. It is indicated for its excitant influence upon the nervous centres, and is all important in reference to the next paroxysm. It may be given in any prostrate case, in which it can be borne by the stomach." Here no hesitancy or delay, to "prepare the system," is advised, no inquiry as to local congestion or inflammation is suggested, although the anatomical characters of the disease, given by Professor Wood, certainly indicate that the brain and spinal cord always, and the stomach, bowels, liver, and spleen frequently, are so involved as to produce "injection" of the arachnoid, pia mater, and substance of the brain, "effusion" in the ventricles, "softening" of mucous membranes, liver and spleen, &c. If lesions, producing such changes as these in the vital organs, so frequently accompany this "pernicious" disease, and yet are not worthy a thought in determining the propriety of giving quinine, why, in the name of science and of common sense, let me ask, should such caution be enforced when the case is an ordinary attack of bilious fever? Verily, "consistency is a jewel."

The *treatment* will, of course, consist of measures adapted to fulfill two indications. First, to produce a reaction; secondly, to prevent a subsequent paroxysm. As you are already informed, in view of what has just been said, means to effect both these objects may be simultaneously employed. There is no necessity for, and very little propriety in delaying antiperiodic medicines, if they can possibly be introduced into the system. They must not be delayed in an urgent case.

For the purpose of resolving the paroxysm, or hastening the reaction, various means have been found useful.

Stimulant applications to the extremities, and indeed to the whole surface; rubbing the skin with dry pulverized cayenne pepper, followed by the application of cold water, applied with a sponge or towel, is a powerful stimulant measure. It may to some appear paradoxical, perhaps ridiculous, but I assure you I have seen more prompt and vigorous reaction produced by this means than any other application I ever used. The capsicum

should be applied with brisk friction for some time, and then the cold water applied so long as to thoroughly moisten the surface. This gives a pungency to the pepper not attainable in other modes, while the stimulating influence of cold water arouses the capillary action, which is sustained and increased by the capsicum, producing redness and warmth of the surface, and thus doing much to afford present relief. The sinapism has also been employed with advantage. This, when applied to the whole length of the spinal column, is decidedly efficient. And when we consider that the nervous centre is the principal seat of lesion, a powerful revulsive application, such as this, immediately over the spinal cord, is surely a hopeful measure. I have found special advantage from a similar measure in a case of extreme prostration from cholera, accompanied with hickup—a symptom very common in these serious forms of bilious fever. The affection was so distressing and prostrating as to threaten the life of my patient, and it obstinately persisted for forty-eight hours, in spite of all the means directed by authors or ordinarily employed. At length, after reflecting upon the nature and probable cause of the symptom, I applied a blister over the spine of the neck and back, and as soon as this drew, the hickup ceased and did not return. So in this disease, which much resembles cholera in being a disease of the nervous system, and in its symptomatic manifestations also, we might expect great advantage from vigorous counter-irritation over the location of the spinal and organic nervous centres; and my experience has, in many cases, verified its efficiency. It is a remedy that should in no case of the kind be neglected. I have known paroxysms of intermittent fever prevented by the application of sinapisms to the whole spinal column.

Where nausea and vomiting are present, or where there is a great sense of prostration and weight in the epigastrium, a large sinapism should be applied over that region. If there is *tormina* or intestinal irritation, the mustard should be extended over the abdomen. This, when no longer tolerated, should be followed by hot fomentations, such as bags of hops wrung out of hot water, or vinegar and water.

Where there is rapid diarrhœa, of a sero-sanguineous character, a pill of opium 2 grs., nitrate of silver $\frac{1}{4}$ gr., may be given.

The nitrate of silver should be perfectly enveloped in the opium. This should, if necessary, be followed by pills of pulverized nitrate of silver and gum arabic, one pill every three hours. Mucilaginous drinks are important also in this state of the case.

In case of dysenteric symptoms, which are sometimes present, an injection of starch and laudanum should follow every discharge. Or instead of these, a pill may be employed as a suppository, consisting of opium 4 gr., nitrate of silver $\frac{1}{2}$ gr., repeated as often as it comes away. A decoction of marsh rosemary (*Statice limonium*), or of *Geranium maculatum*, will be of much advantage in these cases where the bowels are so much relaxed. The dose of the decoction of either may be, say four drachms every hour. These, with the hot bath, bottles of hot water or hot bricks placed near the limbs, stimulating liniments, and other kindred measures, are the means to fulfill the first indication.

Simultaneous with the above treatment, and, as I believe, corroborative of it, let the sulphate of quinia be given, in doses of three to five grains, repeated every two hours. If thrown up from the stomach, follow immediately by another dose. The frequency and size of the doses will depend upon the urgency of the symptoms and the type of the disease. Where the type is quotidian, with alarming symptoms during the exacerbation, and the remission short, the quinine should be introduced into the system as rapidly as possible, by the mouth or by clyster. In more moderate cases, where the remission will probably last some hours, and especially where the tertian type has been developed, more leisure may be allowed in the use of the quinine.

If the mucous membrane of the stomach and bowels does not appear to be much affected, the free use of quinine dissolved in spirits is of great advantage in arousing nervous sensibility and establishing reaction. I remember a case of this kind, where the patient had cold extremities, was entirely insensible, and breathed in a labored, stertorous manner. The skin was shriveled and corrugated, yet there was no diarrhoea nor perspiration. I gave forty grains of quinine in a pint of whisky in twelve hours. The next day the patient was free from fever, and had not another paroxysm. When reaction comes on, the spirit should be omitted and the quinine continued. In all cases, and in what-

ever mode administered, the specific constitutional influence of the sulphate of quinia should be attained before it is discontinued.

I cannot refrain from giving here another extract from Professor Wood, which so nearly agrees with my views and the practice I have pursued with success for years, that I give it to you, though it may appear like a repetition, to some extent, of what I have just said. It is truly gratifying to find, among the rubbish of authorities, an occasional gem of truth, which shines all the brighter by reason of its crude and rusty surroundings.

Wood's Practice, Vol. I., page 295—article, "Pernicious Fever:"

"As soon as a remission or intermission has been obtained, there is but one course of treatment, and that is all important. There should be no delay for previous treatment; no waiting for a more perfect relief from this, that or the other symptom. Such dallying has been but too often fatal. No matter whether the patient has been under treatment during the paroxysm or not; no matter how partial the remission, provided it be a remission; no matter at what period of the interval the practitioner may have been called; his first, his last, almost his only thought, should be sulphate of quinia. This is the remedy for the disease, and only this. At least, none other approaches to it in efficacy; sulphate of quinia being considered merely as the representative of the virtues of Peruvian bark. From thirty to sixty grains of this salt should be given, from the commencement of one paroxysm to that of the next. If none has been given or retained during the paroxysm, the whole should be administered in the remission or intermission. The dose must be regulated by circumstances. When the disease is quotidian, with a short apyrexia, the doses must be large; when tertian, they may be smaller. They should be administered so that the whole quantity may be got down two or three hours before the time for the recurrence of the next paroxysm. From two grains up to half the amount necessary for the whole interval may be given at once. Nothing should deter from the administration of this remedy. Even excessive irritability of stomach is no sufficient contra-indication. If the quinia be rejected alone, it should be combined with opium or morphia; if still rejected, it should nevertheless be administered, in the hope

that a portion, at least, may be retained; and recourse should be had to enemata, and to the endermic application. If administered by injection, it should be mixed with laudanum or morphia, and should be given in double or triple the quantity that might be necessary by the mouth. If applied externally, a large blistered surface should be made over the epigastrium, and the salt applied, very much diluted, in order to prevent inflammation, and consequent interference with absorption.

“The paroxysm is thus almost always prevented; or, if not, is rendered much lighter than it would otherwise have been. But the sulphate of quinia should be continued, in quotidian cases, without abatement, unless in consideration of its effects upon the head, until the period for the second paroxysm is passed. The disease is then subdued; or, at least, all of it which belongs to pernicious fever. The remaining treatment, if any is requisite, must be conducted as in ordinary cases.”

I need only add, that should no remission be perceptible at the time you expect one, still give the quinine. If you have been waiting for a remission, wait no longer, but give the antiperiodic medicine at once, in large doses, and continue it to the extent of producing its specific cerebral symptoms.

Recovery in these cases is generally rapid, though sometimes slow and gradual. The treatment during convalescence, will consist in the judicious use of tonics, baths, nourishing food, moderate exercise in the open air, and such means generally, as have been mentioned while describing the treatment during convalescence from other forms of malarial fever. Where much gastro-intestinal irritation exists, the patient may be left in that debilitated, precarious condition, described as sometimes following congestive fever, and I repeat the caution then offered against harsh or careless treatment. The most watchful and at the same time the most gentle exercise of medical treatment, is imperiously demanded in such cases.

Such, gentlemen, is the course of treatment upon which I have for years relied, for the cure of this formidable modification of malarial disease. A course, based not upon abstract theory, or hearsay evidence, but upon my own personal experience and observations at the bed-side. And, although the authorities lay

down the prognosis of this disease as "exceedingly unfavorable," and their statistics sustain that opinion, you may be surprised when I assert, what is nevertheless true, that since adopting the treatment I have described, I have treated a large number of cases, without losing one. I may not have seen the disease in the malignant form so common in the South, yet many of my cases came fully up to the descriptions of the books, in the urgency of their symptoms; they were precisely such cases as the adherents of the old system were and are accustomed to lose, and yet I have been uniformly successful. I therefore recommend to you, with the utmost confidence, the foregoing mode of treatment.

In closing up what I have to say upon the subject of malarial fever and its modifications, permit me to make a few additional remarks.

You will please observe that my mode of treatment in all these cases is characterized by a studious avoidance of a harsh, irritating or debilitating course of preparatory medication. And I once more admonish you, as you value the lives of your patients, or your own reputation as physicians, to avoid the lancet entirely, employ cathartics and emetics with much caution, in cases where there are accumulations, and then not as leading means of cure, but merely as correlative measures, which must not be permitted to retard the exhibition of the antiperiodic medicines.

In the next place, let me reiterate that no peculiarity, modification or complication, should make you hesitate in the use of those specific remedies, which are alone to be relied upon to effect a cure. If I am correct in the opinion which I honestly entertain, that my practice in the various forms of this disease has been much more successful than that of the old school of medicine, it is owing, I apprehend, mainly, first, to my rejection of depletion, and my caution in regard to irritating and exhausting treatment, and secondly, to my repudiation of the doctrine that quinine is contraïndicated by symptoms of congestion, irritation or inflammation, whether general or local.

Finally, I remark, as I did on a former occasion, that after all, the main superiority of this mode of practice does not consist merely in the fact that nearly every case of malarial disease is cured by it; but the chief excellence of this truly eclectic treat-

ment, is seen in the rapidity with which the patients recover, and the soundness and vigor of constitution which they enjoy. A majority of cases survive the most vicious forms of old school medication; many of them, however, with disfigured features, distorted frames, or constitutions irreparably shattered by the medical ordeal. A much larger majority recover where the cure is trusted to the power of nature, with perhaps a little judicious regulation as to diet and exposure, while confidence is inspired by placebo prescriptions, as shown by the statistics of Homœopathy; but in this way much time is lost, in most cases, before the disease has run its course and worn itself out, and a long period of convalescence must supervene before the patient regains his vigor. While under the treatment I have described, the bill of mortality amounts to almost nothing, and the cures are generally speedy and thorough, neither disease nor treatment being permitted to leave a mark upon the constitution.

I will close the present lecture by producing an extract from the lecture of Prof. Bell, on "Congestive Fever," as found in his edition of Stokes' Practice, pages 617 and 618. This extract goes to illustrate, by the cases cited, the position I have taken, that malarial fever will generally terminate in health, if allowed to run its course. In connection with these cases you will observe, too, a remarkable and very proper confession of the injurious character of the so-called "regular" practice. Prof. Bell says:

"I refer now to the spontaneous termination of fever after the completion of a stated period, without the administration of remedies, and, must we not add, sometimes in spite of them. The remarks of Cleghorn on this point were introduced at the conclusion of my last lecture on the pathology of congestive fever, and those of Valentini at that of the one on typhus fever. Two cases of what the author terms remittent continued fever, will serve to illustrate still more strongly the position now affirmed. The first is thus related by Dr. Tantini:

'On the 20th of August, 1811, there was brought to the hospital a young man thirty years old, a field laborer, who had been at work for some days in the marshes. He was of a robust frame and healthy constitution. For six days past he has been afflicted with a continued remittent fever, of a malignant nervous charac-

ter. His condition on his arrival was as follows: Fever, with a morning remission, followed by an exacerbation of heat, which declined in a notable manner on the approach of night; distress, great agitation at the beginning of the paroxysm; skin hot till towards its decline, which was indicated by some moisture of the skin; pulse weak, soft and frequent, sometimes a little intermittent; prostration of strength; ideas confused and irregular; slight delirium during the first few days of the fever; eyes bright; mouth dry; tongue parched, and marked with a dark line in the middle; lips and teeth dry; the chest and abdomen in a good state; urine abundant; alvine evacuations regular.

‘I wished,’ says Dr. Tantini, ‘to make a trial of the camphor proposed by Guarini, particularly in a case like this, in which the pulse was soft. I added to it gum arabic, as in the following formula: pounded gum camphor, a scruple; lumps of gum arabic, a drachm; mint water, two ounces; and I directed a bottle of lemonade, and half allowance. On the following day, that is, after the seventh accession, the patient had a copious sweat, and a remission from fever, which never returned. After some days of convalescence, he left the hospital well.’

“The philopharmacologist might persuade himself that the camphor had brought about the crisis, which in fact had nearly reached its termination before the physician prescribed any thing. In the next case, however, we have an example of the result which the unaided powers of nature will procure. The narrative runs thus:

‘*Remittent Continued Fever.* On the 26th of August, 1811, a young man of about 26 years of age, who was of a somewhat more delicate habit than the subject of the preceding case, and who had worked for some days in the marshes, was brought to the hospital. He had a continued remittent fever, the exacerbation of which came on at four o’clock in the afternoon, and was ushered in by increased heat, followed by feelings of great prostration; weak, soft and frequent pulse; great restlessness at the beginning, and a slight perspiration at the decline of the paroxysm. The functions of the stomach and bowels were regular; the urine in small quantity, and whitish; mouth dry; tongue foul. I contented myself,’ continues Dr. Tantini, ‘with directing emollient

fomentations to the lower bowels, a mucilaginous enema, barley water for drink, and the half allowance. After the seventh accession, he had, like the other patient, a copious sweat, and the fever entirely disappeared.'

"After becoming acquainted with these and similar cases, one is tempted to ask the grave question—how much beyond the seventh paroxysm do we carry our feverish patients, by our emeto-cathartic, mercurial and stimulating remedies, which not seldom worry the digestive system, and complicate the primary disorder of the nervous?"

Had I an opportunity, I would say to the learned professor, and to all who are similarly situated,—yield, by all means yield to the impulse of your wounded conscience, or to the temptation, if you choose to call it such; "ask the grave question," and press it home to your own judgment, and to the judgment and conscience of your party in medicine, until they shall be compelled to observe the answer to that question, which independent, rational, eclectic medicine is daily demonstrating before the world.

LECTURE XII.

YELLOW FEVER.

When and where it prevails—Endemic and Epidemic—Symptoms and peculiarities—Course—Three Stages—Symptoms of each—Extract from Wood—Symptoms continued—Black Vomit: its occurrence in Charleston—Continued—Its prevalence in Natchez: Description of the town and surrounding country—Description of the Epidemic—Symptoms—General Remarks—Anatomical Character.

We will next take up the subject of *yellow fever*, or *typhus icterodes*. The other names which have been applied to the disease are generally expressive of the localities where it prevails, or of some of its characteristic symptoms. It is very peculiar in its character,—occurring chiefly in the intertropical climates, though it has been known to prevail occasionally further north as an epidemic. A high range of thermometrical heat during a succession of days or months, always precedes, and is regarded as necessary to produce the disease. The disease is known to prevail in places only where the thermometer has ranged at from 70 to 80 deg. Fahrenheit, for a great number of consecutive days, though there must be other attendant circumstances favoring its development, otherwise the heat alone will not produce yellow fever; but more of this presently. It occurs during the latter part of summer or beginning of autumn,—being rarely met with in early summer, and never after the appearance of frost. It seldom prevails farther north than 40 deg. of north latitude, its ravages being much more common and extensive in the torrid zone, or adjacent borders of the temperate zones; and most prev-

alent also north of the equator, though it does occur in the southern hemisphere.

Yellow Fever has on two or three occasions prevailed epidemically in New York and Philadelphia, and once at least in Boston. It occurred at those times under peculiar circumstances, which will not be likely to obtain again. The attention which is now given in those cities to sewerage, and other means to secure general cleanliness, will, it is believed, indemnify them from future visitations of this disease. For it is a fact established by observation, that while yellow fever is almost exclusively confined to large cities, those portions of a city most densely populated, and especially where, from the lowness of the ground, the detritus and filth are liable to accumulate, are most obnoxious to it.

The disease prevails endemically in tropical countries, while its appearance at the North is usually under the character of an epidemic. By an epidemic is meant the general prevalence of a disease, with leading symptoms perhaps unlike those usually attendant upon it. Every kind of disease is liable to assume, occasionally, this character—the result, it is believed, of some atmospheric influence prevalent at the time, intensifying and aggravating the malady, where it is endemic,—that is, where it habitually prevails,—and favoring its development in districts where it is not usually found. Thus, yellow fever is an endemic in New Orleans, Charleston, and other Southern cities, but is occasionally greatly modified and rendered more malignant by this epidemic influence. Local circumstances may favor the development of the same disease in New York, Philadelphia, or Boston, and should the atmospheric influence of which I have spoken prevail, then the disease would probably break out and prevail as we say epidemically. Cases occurring in certain localities, in the absence of a general, prevailing atmospheric cause, may, with propriety, be denominated sporadic.

Yellow fever exhibits, perhaps, more striking, peculiar characteristics than any disease, and is liable, to as great an extent as any other, to modifications and complications, resulting from various extraneous causes, or from differences in the conditions or constitutional idiosyncrasies of patients. In consulting various authors, for the purpose of availing ourselves of their observations

in our efforts to ascertain the nature of the disease, we are struck with the multiplicity of the symptoms described as signaling it, and the great diversity of phenomena which have attended it, at different times and in different localities. It is stamped with the peculiarities of malarial disease in one locality, assumes a typhoid character in another; is mild and manageable on some occasions, at other times most obstinately and fatally malignant.

The symptoms and course of the disease, in its ordinary uncomplicated form, may be briefly stated. It is usually preceded by pretty well defined premonitory symptoms, not very unlike those of other forms of fever: differing very little from those by which a severe grade of bilious fever, for instance, is introduced. In fact the similarity is often so complete that you would find great difficulty to distinguish between the diseases, or, in this stage, satisfy yourself that they were not identical. It very often, however, comes on suddenly, seizing its victim abruptly in the midst of apparent health. But, as I have not enjoyed the advantage of practice in this disease, and cannot, therefore, speak of its character from personal observation, but must depend upon authors for my information in regard to its symptoms, I cannot, it seems to me, render you a better service than that of producing extracts descriptive of the malady from certain creditable authors—doing them justice, at the same time, by giving full credit to each author respectively. And this mode I shall feel myself fully at liberty to adopt, wherever my own experience is deficient, or authors furnish information in a form adapted to my purpose. I shall now read from Wood's Practice, Vol. I., commencing on page 297:

“There is usually some chilliness at the commencement, seldom, however, amounting to rigors or shivering; and this symptom is often altogether wanting. Among the most characteristic phenomena of the incipient stage are severe pains in the back and limbs. After febrile action has become established, the skin is hot and dry, the pulse frequent, the respiration hurried, the face flushed, and the eyes red and watery. The tongue is usually moist, and covered with a white fur, and the throat occasionally sore, so as to render deglutition difficult. Nausea, or other uneasiness of the stomach, with or without vomiting, not unfrequently

attends the disease from the commencement ; but in the majority of cases, the gastric symptoms are not fully developed until after the lapse of some time, perhaps from twelve to twenty-four hours, when they become very prominent. The patient complains of a burning pain, or a feeling of weight and tension, or a vague sense of oppression in the epigastrium ; pressure upon this region generally occasions severe pain, and the stomach is exceedingly irritable, often rejecting every thing that is swallowed, and throwing up its own morbid contents when undisturbed. The act of vomiting is often violent, with retching, and much distress from the extreme tenderness of the stomach. Flatulence is also occasionally a troublesome symptom. The desire for cold drinks is usually extreme ; and ice, held in the mouth and slowly swallowed, is very grateful, in consequence of the intense gastric heat. The bowels are ordinarily costive, and sometimes obstinately so ; and, when discharges are obtained, they are generally unhealthy in appearance, and offensive. But the nervous symptoms are probably those from which the patient suffers most. There is almost always headache, generally in the forehead and eyes, and sometimes confined to one side. This is often exceedingly violent, and continues in a greater or less degree through the whole period of febrile excitement. The pains in the back and limbs, also, which often usher in the disease, continue after the fever has been fully formed, and are sometimes insupportably severe, extorting groans and even screams from the patient. The mind is usually much disturbed in this stage. The patient is apprehensive, anxious and exceedingly restless, and the countenance is strongly marked with the expression of these feelings. Delirium is not an uncommon symptom, and shows itself in various degrees,—from slight mental confusion to maniacal violence, with a wild, fiery look, and uncontrollable movements. Sometimes there is a greater or less degree of stupor, through which, when short of coma, the signs of distress show themselves as through a veil.

“These febrile symptoms continue, usually with little or no remission, for a period varying from a few hours to three days, and sometimes even longer. The duration is shorter in the more violent cases, and longer in the mild ; and in the latter is sometimes extended to four or five days, with a more decided tendency

to remission. Having run its course the fever subsides, and a great apparent amelioration of the disease is experienced. The skin becomes cooler and softer, the pulse nearly or quite natural, the respiration calm, and the stomach comparatively quiet. The headache and the excruciating pains in the back, if not previously relieved, disappear; and the patient, freed from the distress of body and mind, becomes comparatively cheerful, and hopeful, and not unfrequently confident of recovery. It is not unusual to find him sitting up, either in or out of bed, and to be told by him that he is quite well. But this is a delusive calm. Sometimes, indeed, convalescence dates from the subsidence of the fever, in mild cases; but generally the great struggle is yet to come. This apparent amelioration is not in any respect comparable to the remission or intermission of miasmatic fever. The disease still continues unabated. It is only that the febrile phenomena have disappeared under the failing powers of the system. The struggle against noxious influence has ceased for a time. The continuance of the fever would be a favorable rather than unfavorable sign; as it would evince a greater ability of the system to cope with its ferocious adversary.

“There are phenomena, even during this temporary calm, which evince the existence of undiminished danger. Upon pressure in the epigastrium, the tenderness, instead of being diminished, is found to be greater even than before. The redness of the conjunctiva and the flush of the face may be gone, but in their place is often a yellowish or orange color, which gradually extends itself from the forehead and eyes to the face, neck, and chest, and ultimately, in a greater or less degree, over the whole body. The urine, also, has a yellow tinge, which, even though the discharge may appear, in mass, of a dark brown color, may be detected when it is in thin layers. The pulse is sometimes even slower than in health, and has been known to descend to forty in the minute. In bad cases, there is sometimes a little heaviness or stupor. This period of apparent abatement may continue but a few hours, or may be protracted for twenty-four hours.

“Another class of phenomena now ensue; those, namely, of debility or prostration. In severe cases the weakness is extreme. The pulse is quick, irregular, and feeble; the skin is yellow,

orange, or of a bronzed appearance; the blood appears often to be nearly stagnant in the capillaries, so that when removed, by pressure with the finger, from a portion of the skin, the color returns very slowly; the dependent and extreme parts of the body, as the fingers, toes, scrotum, and back, become of a dark, purplish hue. The tongue is now often brown and dryish in the centre, or smooth, red, and chapped; and sordes occasionally collect about the gums and teeth. The stomach resumes all its former irritability; everything swallowed is thrown up again; and a new matter is ejected, consisting of brown or blackish flakes or particles diffused in a colorless liquid, which may be, at first, slightly tinged by them, but ultimately becomes black and opaque. In very malignant cases, the condition of the system above described may come on even so early as the first day; and occasionally the extreme capillary prostration, with the purplish skin, and a pulse scarcely perceptible at the wrist, ensues while the heart and large vessels are still beating tumultuously. The urine, often scanty and high-colored during the fever, is now sometimes nearly natural, sometimes almost or quite suppressed, and occasionally, though rarely, retained. At this stage of the disease hemorrhage occasionally takes place, from various parts of the body, especially from the mucous membranes. Blood oozes from the gums, the fissures of the tongue, the fauces, and the nostrils. It is sometimes also vomited, or discharged by stool, or with the urine; and petechiæ and vibices, arising from its extravasation, appear upon the skin. The irritability and extreme distress of the febrile stage are now replaced by an extraordinary apathy, and the countenance expresses a quiet resignation or gloomy indifference. The pulse at length almost ceases; the respiration becomes slow, sighing, and occasionally interrupted by hickup; the skin assumes a cold and clammy feel; the bowels often give way and discharge large quantities of black matter, similar to that ejected by the stomach; low delirium sets in; an offensive odor sometimes exhales from the whole body; the eyes become sunken, and the countenance collapsed; and death takes place—often quietly, but sometimes in the midst of convulsions. Black vomit, yellowness of the skin, and hemorrhage, have been mentioned as

attendants upon this last stage; but patients often die without them.

“Instead of pursuing this fatal course, the system very often reacts after the period of abatement, and a secondary fever sets in, which may be of various grades of violence, but may always be regarded as a salutary effort of nature, or, at least, as a sign that the vital energies are not yet exhausted. This febrile affection continues, without any special or peculiar symptoms, a variable length of time; sometimes speedily terminating in health, with the ordinary signs of convalescence; sometimes ending in fatal exhaustion, and occasionally running into a typhoid form, which may last, with variable results, for two or three weeks or more.

“When convalescence takes place from severe cases of yellow fever, it is commonly tedious, in consequence of the amount of repair which is necessary to restore the dilapidated organs; and the patient is often incommoded, in the course of it, by obstinate and unhealthy sores or abscesses, in various parts of the body.”

Authors generally make a division of the course pursued by this disease into three stages. The *first stage* embraces an indefinite length of time, between thirty and sixty hours, during which the primary fever and its attendant symptoms prevail. The *second stage* is generally shorter than the first, but varies also very much in duration. It is devoid of fever, and might be termed the stage of abatement. It is generally characterized by great debility. This is followed by the *third stage*, in which the patient sinks into a state of collapse, tending to speedy dissolution, or a secondary fever sets in, inspiring a hope of recovery.

The following interesting description of this disease, as it appeared in 1817, in Charleston, S. C., is from the pen of Henry Dixon, M. D., and was published in “The Philadelphia Journal of the Medical and Physical Sciences,” February, 1822. I introduce it here, as affording you a familiar and graphic delineation of the disease as it occurred under the writer’s own observation, in part, and at the same time, as exhibiting some peculiarities which marked the epidemic at that time and place. After preliminary remarks in reference to the weather; the prevalence of bilious remittent fever in the early part of the summer; the pre-

vious exemption of climatized persons from the disease ; the terror of the inhabitants on finding “ that no length of residence was a perfect security,” as proved by several cases which occurred, Dr. Dixon thus describes the disease :

“ The symptoms with which this malignant epidemic made its appearance were somewhat irregular, varying in different cases. It would not be very easy to distinguish them into the peculiar or characteristic, and the common, or such as may occur in other fevers. At the beginning of the attack, every physician, however great his intelligence, was often liable to be deceived. Hence it became, at last, a rule to treat all cases, attended with any, the slightest suspicious circumstances, as yellow fever—and it was impossible to devise a better mode of conduct.

“ When an individual, who had lately arrived from Europe, from a state north of us, or even from our own interior country, was seized with pains in the head, back, and limbs, pain in the epigastrium, with vomiting or inclination to vomit, great restlessness and anxiety, deep sighing, with a flushed countenance, a red and watery eye, a dry, hot skin, and an active pulse, no one could hesitate to pronounce it immediately an attack of yellow fever, and treat it as such without delay. The symptoms, however, were usually by no means so strongly marked, and it often happened, especially at the commencement of the prevalence of the disorder, that time of immeasurable importance was lost, in the use of remedies inefficacious, or, however powerful in themselves, unsuited to this form of fever.

“ The patient often complained first of chilliness, though there was not usually any formed chill or rigor. After this, or, as sometimes happened at first, pains were felt in the head, back, and limbs, for the most part very severe. The *headache* seemed chiefly to affect the forehead, and frequently continued, in a distressing degree, through the whole course of the malady. I saw one case in which it was so violent as to occasion constant watchfulness and repeated screamings ; nervous appearances supervened, and it was for some time dreaded that the case would terminate in convulsions. The determination to the brain was in many instances so great, even at the commencement of the attack, as to produce some confusion of thought, or delirium. The lower

were much more commonly affected than the upper extremities. The pains seemed to be fixed mostly in the muscular parts, though in a few instances confined to the larger joints, as the knees, &c. The aspect of the eye, supposed to give one of the characteristic marks of the disease, was almost invariably the same—inflamed, very sensible to light, red and suffused, well described by Jackson, as resembling the state of the organ caused by exposure to the smoke of green wood. Pain was felt, as if in the very centre of the eye, and more particularly, I observed, in several instances, when the eye was moved from side to side without turning the head. The stomach, which seems truly ‘the throne of this disease,’ was generally irritable from the first, easily excited to the action of vomiting, which, when it came on, whether spontaneously or by anything taken, was uncontrollable, or restrained with difficulty. The patient complained, in most cases, of a feeling of soreness at the pit of the stomach, which was much increased by straining to vomit, or by pressure on the epigastrium. This pain was sometimes not at all felt, except when pressure was applied to the part, or when the vomiting was attended with much retching or straining. There was also a great degree of restlessness and anxiety, vast oppression about the præcordia, with heavy, deep, and frequent sighing.

“The respiration was slow and laborious, or embarrassed, hurried, and irregular. The countenance was peculiar and striking; so much so, that it was thought by many to mark the peculiar character of each case. The aspect was somewhat distressed, the face flushed and turgid, and this, with the watery redness of the eye, gave to the whole a most singular wildness and fierceness, combined with an expression of sadness and terror. The skin was mostly hot and dry. Cases, however, occurred, in which it continued through the whole, cool, moist, and pleasant, as in a natural state. One patient (Harper) was covered with a fine sweat during his four days’ illness in the hospital, where he died.” The yellow tinge, from which this disease has derived its name, was, in a few instances, soon perceptible, though, in a far greater number, not at all to be observed until the second stage. There was a peculiar feeling of constriction, or hardness and want of

pliability in the skin of most patients, combined with heat and dryness.

“The pulse, assuming the highest rank among our means of forming an opinion in cases of common fever, seemed very frequently, in the malady under consideration, to have no correspondence with the state of the system. I have found it, in some violent attacks, very little more frequent, full, hard, or tense than natural. Generally, however, it was in the first stage increased in volume, hard, quick, jerking, and irregular; sometimes small, slow, and corded, giving to the finger the feeling as if oppressed.

“The bowels were very torpid, and the constipation was with difficulty removed by the most active cathartics. When stools were procured, they were often black, or dark colored, from the very first. The tongue presented a vast variety of appearances; sometimes moist, soft, and clean, at others with a smooth, whitish coat; again, rough, furred, hard, dry, brown or black, or of a yellow or orange color. When much furred, there was usually an unpleasant taste in the mouth. The thirst was, for the most part, excessive—the patient continually begging for drinks. But, if I am not mistaken, water was as often desired on account of the agreeable coolness which it produced in the burning stomach, as for the relief it gave by quenching thirst.

“These symptoms constituted the *first stage* of the disorder, the duration of which varied somewhat, with the different circumstances of the different cases. On the third or fourth day, according to these circumstances, the remission, so often described by writers, took place. The headache was relieved, the pain in the back and limbs disappeared, the skin became softer and moister, the pulse so natural as hardly to be distinguished from that of health, the breathing was easier, the pain and irritability of the stomach were lessened, the eye was less inflamed, and as the redness decreased, a yellow tinge became more and more perceptible on the adnata. The patient seemed to be, in a good degree, freed from his horrible anxiety and depression of spirits, and to be revived once more by the heart-cheering influence of hope. But hope here, as in all other human affairs, proves in general a deceiver, and a short time serves to dispel her illusions. In a few hours (if not previously controlled by our remedies) the

disease returns, with a violence infinitely disproportioned to the powers of resistance in the constitution.

“Of this *second stage*, the most prominent feature is the very great debility under which the patient labors. His pulse sinks, there is great muscular prostration, and if his skin has not been discolored before, a yellow hue is now discernible, particularly on the forehead and breast. The irritability of the stomach is increased, nothing can be retained, and the vomiting, which was before attended with severe straining and retching, becomes very easy and frequent. A fluid of a dark color, so well known by the name of black vomit, is thrown off, usually in large quantities, seeming often to be ejected from the mouth with little or no effort on the part of the patient. The respiration is still more difficult and hurried, with frequent sighing, and intolerable distress about the præcordia, attended occasionally by delirium. The alvine evacuations are large, and consist of a fluid apparently of the same kind with that constituting the black vomit. These symptoms increasing, death soon relieves the miserable patient from sufferings dreadful to contemplate.

The duration of the disease was very various in the different cases—in some instances proceeding so rapidly to its close, that time was scarcely allowed for the exhibition of any remedies. At other times the progress was much slower, and the chief differences in duration were almost exclusively confined to the second stage. The first was, in all, of nearly the same length, lasting from *thirty to sixty hours*, except in those cases in which the powers of life were at once prostrated by the shock of the pestilence, and crushed beneath its overwhelming violence.” * * *

“The recoveries from yellow fever were, in general, very slow, the convalescence lingering and tedious, and in many instances the convalescents were much troubled by the formation of large abscesses on the body and limbs, which did not suppurate kindly, and were very difficult to heal.

“As has been already stated, strangers were most liable to the attack of yellow fever. Those from Northern climates, Europeans, more especially the English, Irish and Scotch, were assailed violently, probably from their national habits and modes of life. The French and Spanish, who are nationally remarkable for tem-

perance in food and drinks, had the disease, on the contrary, in a somewhat milder form. Natives also of our healthy back country, and even those from our marshy sea-coast, seldom escaped ; and although Northern constitutions were most subject to the disorder, persons from our Southern sea-coast were by no means perfectly secure. The first instance I saw of an attack in such circumstances, was of a young man from a little seaport of St. Mary's, in Georgia. This of course made a deeper impression upon my mind, as I had previously been under the common mistake of supposing that, having been born or resided in the South, constituted a good degree of safety. Children, especially infants, being indeed in some points of view strangers, were peculiarly liable to the attack of this disorder, and its ravages among them were dreadful. The mothers of Charleston will long remember, with tears, the unhappy summer of 1817. Even adult natives and old residents, as before mentioned, were not entirely exempt. Cases of seizure among these, though not very numerous, were by no means rare. The attack was violent, and the progress of this disease rapid, in the robust and plethoric, as well as in those who had been much exposed to the heat of the sun, the chilliness of our night dews, &c. The intemperate rarely survived, and their illness proceeded rapidly to its termination. But the most affecting mortality was that among children. Remedies seemed here of little avail, and it was often a melancholy lot of parent and physician, to watch without being able to arrest, or even retard, the rapid progress of the dreadful malady, or even relieve those pangs, from which the miserable little sufferer found refuge only in the grave."

To exhibit the effects of this disease in another locality, I extract the following, from "An account of the yellow fever of Natchez," as it occurred in 1819, by A. Perlee, M. D. Philadelphia Journal of Medicine, November, 1821 ; page 10, &c. :

"As far as a general description will apply, the symptoms of this fever were similar to those which have been recorded of the several epidemics of the same kind that have prevailed in various parts of the United States.

"Weariness, or sense of lassitude ; shooting pains in the head, back and extremities ; redness or inflammation of the eyes ;

dryness of the skin, with a remarkable feeling of constriction, as if the skin was contracting upon the body; loathing of food; costiveness; paucity of urine, &c. These symptoms, if not relieved by the remedies, were, in the course of from six to twelve hours, followed by vomiting of frothy matter; great irritability of the stomach; an indescribable sensation about the *præcordia*, excessively distressing—feeling somewhat as if the stomach was violently distended, and at the same time empty; liquids when swallowed, produced a noise like pouring them into a bottle. The pulse was generally little excited. The bowels were difficult to move, and the *fæces* dark colored and very foetid; the skin was dry, and seldom warmer than natural; the tongue was slightly furred, of a yellowish-brown color. These symptoms were succeeded by yellowness of the skin, similar to that of a dark mulatto; but such appearance was not general. In this stage, there was frequent vomiting of dark colored matter, with violent and distressing hickup, followed by great prostration of strength, *subsultus tendinum*, and death.

“The duration of the disease was extremely variable. Many died within three days, whilst others continued sick for two weeks or longer. In some it appeared as a mild remittent, and proceeded ten or fifteen days without any dangerous symptoms, when suddenly the worst symptoms would take place, and carry off the patient in a few hours.

“A red, watery eye, with a dull aspect; preternatural floridness of countenance, without increased heat; that distressing sensation in the region of the stomach, before spoken of, and vomiting of black matter, were signs of the greatest danger, and generally proved the harbingers of dissolution.

“Early in October, many symptoms were observed, which indicated a near approach to the character of malignant scarletina, such as an eruption of red spots upon the face, neck and breast; a deep crimson color of the fauces, tongue, and internal parts of the mouth; frequently accompanied with an effusion of blood, great prostration of strength, &c.

“Towards the end of this month and the beginning of November, the disease assumed many of the diagnostic symptoms of yellow fever, approaching in some measure the character of *typhus*

gravior. An attack came on with great prostration of strength, without much pain, and soon afterwards there was a disposition in the alimentary canal to diarrhœa; weakness and slowness of pulse; profuse hæmorrhage from the eyes, mouth, nose, and in females, from the uterus. The stools were very copious, and apparently mixed with grumous blood. Eruptions of petechiæ, resembling flea bites, were common. An increase of these symptoms was attended with so much exhaustion of strength, as to terminate fatally; death making its approach as a profound and oppressive sleep, seeming to result from an abstraction of the vital power, rather than its expenditure from violent morbid excitement. Putrefaction rapidly followed death, and in some cases appeared almost to precede it. A few patients who had labored under these symptoms, expired in the most awful convulsions. I saw two cases that terminated in buboes that sphacelated, and were a long time healing; both, however, ultimately recovered. After the subsidence of the more violent symptoms, there was great liability to relapse; and convalescence, in general, went on very slowly. The slightest fatigue, exposure, or improper diet, frequently produced a return of indisposition, and which was not without danger."

Thus, by the extract from Professor Wood, I have given you the general course and symptoms of yellow fever. By the extracts from Dr. Dixon and Dr. Perlee, you are furnished with descriptions of the disease, exhibiting not only its general course and symptoms, but also some peculiarities resulting from special influences at different times and places. Similar extracts might be multiplied, and views of the disease in different aspects, and under a great variety of circumstances, might thus be afforded. But it is believed that careful attention to the symptoms and peculiarities already detailed, will enable you to comprehend the nature of this disease, so far as a description of symptoms can afford a clue to its character. You doubtless have observed, that according to every writer cited, and I might add that according to all writers, there is great diversity in the symptoms accompanying different cases. There is not a single symptom which may not be absent, even in a fatal case, and yet there will exist other symptoms so marked and peculiar, that no difficulty will be found

in identifying the disease. Even the yellow skin, a symptom so constant in the latter stages of the disorder as to have given it a name, is by no means always present; and the black vomit may not be seen during the life of the patient, though it is probably always present in the stomach towards the termination of a fatal case.

It may not be improper in this place to make a remark or two, in regard to the character of the two last mentioned symptoms, — the *yellow skin* and the *black vomit*. They will be observed to occur generally simultaneously, or nearly so, and I doubt not are dependent upon the same cause, namely, the deterioration, or decomposition of the blood. The morbid influences in the system probably produce an excessive development of yellow coloring matter, similar to that of bile, which is deposited in the skin and other tissues, and colors the urine. This produces the *yellow color of the skin*, which, as the case progresses, becomes still darker, and not unfrequently assumes a bronze color, owing to a mingling of the yellow with the red coloring matter of the blood.

The *black vomit* was once believed to be vitiated bile, when the liver was considered to be the seat of the disease; but post mortem examination having exhibited in some cases a normal condition of the liver, with natural bile in the gall bladder, where black vomit was a prominent symptom, no foundation remained for such an opinion. Others have attributed it to a vitiated secretion of the mucous membrane of the stomach, but this opinion is not supported by facts. The most rational and satisfactory explanation of its character, and the one now generally adopted by the best authors, is based upon the chemical character of the matter ejected from the stomach, and the condition of that organ and the tissues and fluids generally after death. The opinion thus formed is, that the dark colored substance thrown from the stomach is decomposed blood, which has passed by exosmosis through the relaxed tissues of the stomach, changed in some measure, it may be, by the vessels and acid secretions of the organ. This transudation is known to take place freely after death, and its occurrence during life need excite little surprise when we consider the debilitated, re-

laxed, almost devitalized condition of the gastric tissues in a disease of this character.

Having progressed in the consideration of yellow fever so far as to have given a general outline of its symptoms during the rise and progress of the disease, to a fatal or favorable termination, I come now to speak more particularly than I have done of the *anatomical characters* revealed by post mortem examinations. Extensive, careful and critical investigations have been made, for the purpose of ascertaining the organic or structural changes produced upon the solids as well as the fluids of the body, by this fearful malady. And this branch of the subject is invested with the more interest, inasmuch as post mortem appearances have been made the basis of doctrines that have held sway at different times, and upon which modes of practice have been instituted, with results in many instances fatal, both to the theory of the physicians, and the lives of their patients.

The *blood*, even when drawn during life, especially towards the termination of a fatal case, though it may coagulate, forms a coagulum, less hard and firm, than that of healthy blood. It seldom exhibits, at any period of the disease, the buffy coat, characteristic of inflammatory diseases—and when the system is brought fully under the morbid influences characteristic of yellow fever, the blood possesses much less vitality than in other malignant forms of fever. The clot, if formed at all, is brittle, friable, and more easily broken down than in other fevers; and in the more malignant forms of this disease, the blood loses its coagulability altogether, so that when drawn from the arm it remains in a fluid state, showing that decomposition has already commenced. This being the case during life, we would naturally expect to find, after death, what is often the fact, the veins filled with dark, decomposed blood, in a liquid condition. The cause of these changes in the circulating fluid, can only be referred in my opinion to a great loss of vital energy in the nervous system; and in reality all the phenomena of this grave and fatal disorder, as will be shown hereafter, point to the nervous system as the seat of the disease.

I shall not attempt a description of all the minute changes that take place in different parts of the body, but shall confine

myself to a general reference to the most important. As far as careful examinations of the *brain* have been made, following this disease, that organ, with its membranes, has generally been found in a diseased condition. The *dura mater*, usually slow to become diseased, has been found studded with specks of the coagulum of blood, accumulated in little particles near the surface; the *arachnoid* covered with a deposit of coagulated lymph, showing a low grade of inflammation; the *substance* of the brain is generally more dense and hard than natural, owing, I suppose, to a contraction of the fibres. This is an important phenomenon connected with the disease, as, in most diseases affecting the brain, the cerebral substance is found to be softened. Serum is sometimes observed in the ventricles. The vessels of the brain are often much distended; so also are those of the *spinal cord*. The latter, however, is often differently affected in different persons; while in some, the whole cord is found involved, in others the lesion is confined to a particular location; more especially opposite the abdominal cavity. There is sometimes a dark coagulum deposited in its vessels, giving it a sort of bruised appearance.

The cavity of the chest, also, has been carefully explored in the victims of this disease; and each and every organ has been found, in some cases diseased, in others in a normal condition. There is sometimes engorgement of the *pulmonary bloodvessels*; more frequently the mucous membrane of the *bronchial tubes* is affected, so as to contract the tubes; sometimes they are relaxed; more frequently healthy. In this, as in congestive fever, there have been found partial plugs in the aorta, occasioned by the blood becoming organized in passing out from the heart. This I have noticed in a number of cases of congestive fever.

The liver, once considered the essential seat of this disease, has been found exceedingly variable in its anatomical developments. Occasionally it is entirely free from disease, so far as the eye can discern; but in a majority of cases it is very much involved. Its condition, however, differs greatly in different cases. Sometimes there is a congested, engorged condition of the vessels; in other cases, the hepatic substance is contracted, hard and brittle; and in others, softened and beginning to be

decomposed. As before remarked, it is sometimes apparently in a healthy condition, with the gall bladder filled with healthy bile.

The *spleen*, too, is variable in its conditions. It is more frequently engorged than the liver, and more perhaps than any other organ; though the obscurity of its functions, and consequently of its relation to morbid phenomena, is such that comparatively little interest has been felt in describing its appearances.

The *alimentary canal* has been very closely examined, and full descriptions of its developments are on record. This canal, and especially the stomach, has generally been regarded as the part on which the disease spends its chief violence; and, though not the primitive point of invasion, there can be no doubt that the *stomach* more uniformly suffers, not only functional disturbance, but structural lesion, also, than any other organ. A softened condition of the mucous membrane is very common, and it is said that the intestines have been found perforated, so that fœcal matter was discharged into the peritoneal cavity. This was not the result of ulceration, but, as it were, a softening and giving way of the fibres of the intestinal parietes. The *duodenum* seems more frequently and more deeply involved than the jejunum or ilium, though these do not generally escape. The rapidity with which the disease runs its course, prostrating the nervous system, and, as it were, abstracting the vital principle from the tissues, generally allows little time for those secondary lesions which often attend fatal cases of ordinary fevers. But when the secondary fever sets in, as it will, if the disease do not early destroy the patient, the case, as has been shown, will assume the typhoid character, and the autopsic condition of the small intestines then always corresponds with the external symptoms.

LECTURE XIII.

YELLOW FEVER—CONTINUED.

Cause—Vegetable and Animal Malaria—Reasons given—Additional Facts—Extracts from Dr. Perlee—Yellow Fever in Natchez in 1817; in 1819—Dr. Dixon on Yellow Fever in Charleston, 1817—Reference to other cases—Circumstances necessary to produce Yellow Fever—Contagiousness disproved—Diagnosis—Prognosis—Treatment—Quinine and Iron—Other Remedies—Remarks on Cathartics, Mercury and Lancel—Convalescence—Means of Prevention.

The *cause* of yellow fever has been the subject of much discussion, and various opinions are held by the recognized authorities. After reading the history of the disease as it has occurred at different times and in various places, and considering all the phenomena which generally precede and accompany its visitations, my own mind has settled down upon the opinion that the disease, wherever met—whether as an endemic or epidemic—is produced by the *conjoined influence of two kinds of malaria*: one resulting from *vegetable*, the other from *animal matter*, in a state of rapid decomposition. The reasons for this opinion I shall endeavor briefly to state.

The facts to which I will first refer, as grounds for my opinion, are connected with the habits and characteristic peculiarities of yellow fever. These will be observed to hold about an intermediate position between those of bilious or marsh malarial fever, on the one hand, and of typhoid or enteric fever, on the other: the latter disease being, as I am convinced, dependent on animal or idio-miasm. There appears to be less general susceptibility,

in all classes of community, to yellow fever than to bilious, while there are not so many exemptions as are recognized in regard to typhoid. Yellow fever does not as generally preclude a second attack as does typhoid; but has that influence in a greater degree than bilious fever. The effects of acclimation, as a protection against the disease, are about the same as in the other two. The symptoms of yellow fever in the stage of invasion, seem identical with those of bilious fever,—often, indeed, well marked by periodicity at first; the symptoms of the stage of prostration are not dissimilar to many of those which signalize malignant intermittents, combined with the low state of the vital forces characteristic of typhoid disease. Finally, when a reaction does occur, and the disease is protracted, the typhoid character becomes clearly established. Thus the two malaria are acting upon the system together; the vegetable being the more active, first impresses its influence upon the patient; to this is soon added the depressing power of the animal poison, which of course materially modifies the symptoms; and if the constitution have sufficient stamina to sustain the shock, it is finally relieved in a measure from the more active and more transient koino-miasma, and is left to struggle with the prostrating power of the more tardy but tenacious animal poison.

The above view of the compound character of the cause of yellow fever, is much strengthened by numerous well established facts. It occurs at those seasons and in those localities favorable to, and prolific in the production of both the other forms of fever of which I have spoken. Its invasions are generally preceded by the prevalence of bilious fever in the community, so much so as to lead some to believe that it depended alone upon that cause; but, with remarkable pertinacity, it confines its ravages to those places where a dense population is found, and animal deposits are abundant—as in the most crowded and filthy portions of maritime cities. Long continued heat, after the surface of the earth has been thoroughly soaked with water, producing that combination of heat and moisture so favorable to both kinds of miasm, invariably attend its invasions. The permanent character of the locality, both as to soil and climate, where it prevails endemically,

are precisely such as favor my views, and the existence of similar circumstances temporarily, where it has prevailed occasionally as an epidemic, seems to leave no room for doubt as to the correctness of the opinion above stated.

To show that the facts to which I have referred do really exist, I shall make extracts from the records of respectable eyewitnesses. The first is from the pen of Dr. Perlee, in his description of yellow fever as it occurred in Natchez in 1817 and 1819, *Phil. Jour. of Med. and Phys. Sciences*, Vol. III., page 1 :

“Natchez is situated upon the eastern bank of the Mississippi, in Lat. $33^{\circ} 31' 46''$, N. Long. $6^{\circ} 6' W.$, on an elevation of about one hundred and fifty feet above the surface of the river at low water. The shore forms a high bluff or precipice—which, rising rather above the site of the town, excludes the view of the river, running close to the foot of it, when raised by the vernal floods. The surface is very undulating, so as to require an extensive digging down of hills and filling up of hollows to make streets conveniently level. The soil is a rich black mould; the sub-earth, sand, clay, &c., as low at least as the surface of the river. The whole mass exhibits strong marks of being oceanic alluvion, extremely light and soluble in its texture. The country adjacent on the same side of the river has generally the same appearance, with a gradual but irregular declivity for about three miles eastward, to the creek St. Catharine. The fragility and solubility of the earth render it liable to be washed into deep and numerous ravines, which become the receptacles of water and various substances liable to putrefaction. The western side of the river is one immense flat of alluvion, containing extensive swamps, and interspersed with many lakes and ponds.” * * *

“The western section of the State of Mississippi abounds in those causes which in warm climates or seasons generally produce bilious fever. A soil of extreme fertility, having an immense vegetable production, the leaves and offal of which are annually deposited upon the surface—which, by its declivities, admits an accumulation in hollow or flat places, when becoming saturated with moisture, they soon run into a state of putrefaction. Extensive swamps filled with putrescent substances—numerous creeks

and bayous,* which frequently overflow their banks, leaving them covered with a sediment that emits very offensive exhalations—and the western boundary forming the bank of the Mississippi, which, by the subsidence of its waters, exposes an immense surface to the sun, form other prolific sources of pestilential emissions.” * * * * *

“The salubrity promised by the natural topography of Natchez, has been evidently impaired by the means used to improve the site of the town. The earth of which the hills that have been dug down were formed, contains numerous particles of partially decayed vegetable and animal substances, which, when exposed to heat, air, and moisture, quickly undergo the putrefactive process. The earth itself being loosened, absorbs large quantities of water, which retained, assists the operations of this laboratory of pestilential exhalations. The natural water courses being obstructed, ponds are formed, which soon stagnate—and at every fall of rain receive copious additions of filth. The cellars in many parts of the city, particularly those situated in the loose new-made earth, are liable by every copious rain to become partly filled with water—and frequently containing quantities of putrescent matter, form another very obvious cause of disease. In consequence of the filling up the streets and alleys, the back yards of many houses are lower than the adjacent ground—and having no drain, admit of large accumulations of kitchen offal and other offensive matter. The streets not being paved, are by every considerable rain covered with mud several inches in depth, which, being mixed with the excrements of the herds of horses and cattle with which they are crowded, emit a most offensive effluvium, in warm, moist weather. The privies are also very much neglected, and being frequently so situated as to have their sinks receive water, are abominably foetid. The burying ground is another nuisance of a moist, noxious character. Located almost in the compact part of the city, and the earth being of the lightest texture, very partially prevents exhalation from the dead bodies deposited there, many of which were buried during the prevalence of the epidemic,

* “A provincial appellation given to gullies or ravines that occasionally carry off water.”

in very open or carelessly made coffins, in shallow graves. The effluvia hence arising was exceedingly offensive in the warm, still mornings and evenings of the latter part of 1819."

"In addition to all these causes, which would make a *Montpellier* sickly, there is a general neglect among the inhabitants in their cellars, yards, outhouses, &c. Can it be doubted that such causes are not amply sufficient to produce malignant fever in a climate where the temperature, for at least five months in the year, is as high as eighty of Fahrenheit—the average temperature of the whole year not below sixty-five—and the quantity of rain as much as fifty-five inches?"

Speaking of the year 1819, Dr. Perlee says:

"The winter and succeeding spring were mild, and no particular disease prevailed. The summer set in very warm. The month of June, though warm and rainy, still continued healthy. July was attended with an increase of temperature, and an extraordinary quantity of rain,—greater than had fallen in any one month for nine preceding years. During the last four days of the former and first three of the ensuing month, there were tremendous torrents, occasioning extensive and destructive inundations of all the low grounds adjacent to the water courses. At the subsidence of this flood, hundreds of acres along St. Catharine's creek were covered with sediment, from a few inches to several feet in depth, which, after it had been exposed to the sun, and the surface become dry, cracked open, and emitted most offensive exhalations from the putrefying substances beneath. Great numbers of cattle, sheep and hogs were drowned, and afterwards lay putrefying upon the surface. The sickness and mortality prevailing along the whole course of this creek evidently resulted from this inundation. The streets of Natchez were completely deluged, and became a bed of mortar. All the low places that had their drains obstructed were filled, and also most of the cellars, in a greater or less degree. This rain was followed by extremely hot weather, with a very bright sun. The months of September and October were very warm and dry.

"About the middle of July many cases of intermittents were observed, mostly attended with copious excretions of bile. The negroes upon the plantations suffered severely. Not a few who

recovered from the first attack of fever, were carried off by violent diarrhœas. The type of the fever progressively assumed a more serious character. About the beginning of August, remittents or double tertians greatly prevailed, and several persons died. The increased number of cases that occurred in the beginning of September, excited considerable alarm, and induced the board of health to request the physicians to report the first cases they might observe indicative of malignity. On the first of the month I was directed to visit four men lying sick at the upper end of Main street, who were said, by the neighbors, to have the yellow fever. After a careful examination of them, I reported their disease to be a severe bilious remittent, unattended with symptoms of malignancy, but that I apprehended, if the severe warm weather continued a few days longer, such symptoms would probably appear. I suggested that the large pond of stagnant water very near the house was the cause of this sickness, and advised it to be drained, the bottom scraped and covered with lime. This was not done till the sixth day, and then very imperfectly. On the third day one of these men died, and it was asserted by the good woman of the house, of the black vomit. The attending physician did not report it as a case of yellow fever, the existence of which in Natchez he obstinately denied. He fell a victim to it himself. On the second day of the month I was called to visit three men in the same neighborhood, who had been employed in a work-shop very near the before mentioned pond. At the same time another man, who belonged and worked in the same shop, was taken sick and removed further down the street, where he died on the fourth, and was formally reported by his physician to have died of yellow fever. On the evening of the third one of my patients was removed to the lower part of town, where I found him next morning with every pathognomonic symptom of the epidemic. On the same day a man died at the Natchez Coffee-House, with black vomit, sallow skin, and such other symptoms as left no doubt on the minds of the medical men who saw him, of his disease being yellow fever. The three cases being reported to the board of health, they immediately published a handbill, announcing the existence of the disease, and advising the inhabitants to remove into the country without delay. These

facts coming under my own observation, I can attest the truth of them, and have no doubt that the fever originated from local causes exclusively."

Here, you observe, the rain, the heat, the local circumstances, the vegetable and animal putrefactions, all favor the production of the compound or idio-koino-miasmata, and the gradual progress of the disease from intermittent to remittent, and this increasing in malignancy until yellow fever is finally developed, exhibiting, "in some measure," as the author elsewhere remarks, "the character of typhus gravior," with "a disposition in the intestinal canal to diarrhoea," "eruptions of petechiæ resembling fleabites," &c., all incontestably sustain the doctrine I have advanced.

To show that this is not an isolated case, I produce the statements of Dr. Dixon, from his description of the yellow fever of Charleston, S. C., in 1817, before quoted.—"Philadelphia Journal of the Medical and Physical Sciences," Vol. III., page 250. He says:

"The spring of this year was distinguished, in our city, by the frequency and violence of the common diseases of children. Great numbers were carried off by cholera and atrophy, and the process of dentition was unusually dangerous. The summer set in with such floods of rain as had seldom or never before happened within the memory of the oldest inhabitants. But these seemed to fail of their usual effect in producing coolness of the earth and air, for the weather was steadily warm, though perhaps not so hot as the average of our summers. The range of the thermometer was generally between 82° and 88° of Fahrenheit. Thunder storms, which in ordinary seasons are of frequent occurrence in our climate, were observed to be extremely rare, as well as slight.

"The country fever, a form of bilious remittent which has obtained this name among us, as chiefly seizing those who have exposed themselves by sleeping among the marshes of our low country, after the coming on of warm weather, made its appearance this year earlier than usual, and attacked many who considered themselves perfectly safe, as having removed to the city at the usual period, about the end of May. Its attacks were also

peculiarly violent and fatal, the number of deaths from it being greater than had ever been known before.

“The common bilious fever of our climate was also more than usually severe, and numerous cases of it were recorded in our bills of mortality. This concurrence of circumstances, however, did not seem previously to create any dread, though it is evident from them that our atmosphere was infected with some principle unfriendly to life and health.

“It was not until the 23d of July that the yellow fever appeared among us, and, spreading with considerable rapidity, soon excited universal alarm.

“The first case which I have been able to ascertain, was that of a Mr. McCoy, who lived in a low and dirty part of the town, on East Bay street, between the Market and Exchange.”

Here, then, we have a similar state of things preceding and accompanying this disease in a locality where it is endemic, and where, as the same author conclusively shows, it originates in local causes and not by importation. In a subsequent part of the same paper, Dr. Dixon says :

“That the yellow fever is an endemic of our climate can scarcely be doubted. The facts which go to prove this point are so numerous and clear, *that the contrary opinion is not held by any* physician of this city with whom I am acquainted. I have been informed by Dr. G. P. Pringle, whose statement on this, as on all other subjects, is entitled to the highest consideration, that during his long and extensive practice, no single summer has passed, in which he has not met with some case or cases of yellow fever.

“It is impossible to account for the appearance of the disease among us every year, on the plan of importation. If such were the fact, it is evident that seafaring men, and that class by business connected with them, would be the most liable to be attacked. During several seasons, however, not a single case was brought into our marine hospital—so that sailors often escaped entirely while others were seized—notwithstanding the fatigues and exposures which, in all southern ports, mark them as peculiarly the victims of fever.

“McCoy, the first case in 1817, clearly appeared to have had

no connection with any shipping, and was in no way exposed to contagion or fomites before he was taken ill. Can these facts be made to agree with the supposition that the disease was imported into our city?"

To the historical facts thus adduced others might be added, derived from the visitations of yellow fever at other places, as New York, Philadelphia, &c. But the foregoing is deemed sufficient to sustain the doctrine of the compound malarial origin of the disease. I must refer such as desire further historical information on this point, to the various works containing accounts of the prevalence of this disorder in different places. My limits will not admit of further extracts.

This subtle compound miasm, then, is necessary to the production of yellow fever; yet the disease is not always developed even where the miasmatic cause prevails. This cause must exist in a very high degree of intensity, and meet with a constitution predisposed, by habits of life, much exposure, or other depressing influences, to *insure* the production of disease in its full malignancy. Hence, most of the community escape, especially acclimated persons, even where the disease prevails with the power of an epidemic. Under such circumstances all, perhaps, will be sensible of a depressing influence operating on their constitutions. Some will have a very mild attack, and cases will occur with every grade of character, from a slight indisposition up to the stroke which lays the walker prostrate in the street. So that, having satisfactorily ascertained the specific cause of the malady, all its various phases, phenomena, anomalies, degrees of virulence, and other peculiarities, are to be explained, as in the case of other fevers, on the ground of differences of constitution, combinations of local circumstances, complication with other affections, &c. It will be recollected that these peculiarities were extensively discussed under the head of intermittent fever. It will also be recollected that it was there shown, that the mild intermittent of the North was only a different grade of the same disease which is often so malignant in southern climates. Now, to the malarial influence which produces malignant intermittent or remittent fever, let there be superadded a miasm capable of developing a

low grade of typhoid, and you will, where other circumstances favor it, have genuine yellow fever.

Much space is allotted, in the books, to a discussion of the question whether yellow fever is or is not a contagious disease. From what has been said of the cause, character and history of the disease, it is unnecessary, I apprehend, for me to say that I do not regard it as a contagious malady. As an endemic, originating annually in its accustomed localities, and whether prevailing as an endemic or epidemic, confining its ravages to certain circumscribed limits, and disappearing on the occurrence of frost, it certainly exhibits none of the marks of contagion. True, a constitution which has once suffered from the disease, appears to be in a measure protected from a second attack, and this has been thought to bring it within the class of contagious diseases which exhibit that peculiarity. But it is not, as I believe, clearly established, that persons who have had yellow fever are exempt from future attacks. Numerous instances are on record of fatal cases, where the victims of the disease had the second or third attack. Such instances are comparatively frequent among those who do not reside permanently in the regions where the disease is endemic; and it is very questionable whether one who has had yellow fever, is fortified against it, any further than acclimation protects him who lives through the epidemic season, without taking the disease.

Dr. Wood says, "hundreds of instances occur, in extensive epidemics, in which patients originally seized in cities are scattered through places in the country; and yet the instances are exceedingly rare, in which it is even pretended that the disease is thus communicated."

Finally, I remark on this point, that fevers resulting from marsh miasmata, such as ague and fever, bilious fever, &c., are not even suspected of being contagious; that typhoid fever, which is produced by animal miasm, is not propagated by contagion, as will be shown hereafter; and we would scarcely expect to find the contagious character attach to a disorder resulting from a combination of these two non-contagious causes. This consideration alone, in the absence of well-attested facts to the contrary,

must lead us to conclude that yellow fever is not communicable by contact or *fomites*.

The *diagnosis* of this disease in the first stage, is attended with difficulty. It presents the usual symptoms of fevers in their incipient stage, with no symptoms to distinguish the disease, or, if any, they are very obscure. There is sometimes, it is true, an early development of diagnostic symptoms, upon which an opinion may be based with some degree of certainty. These are those severe pains in the back and loins which have heretofore been mentioned, the injected conjunctiva, and the flush of red on the forehead and face. Where these occur under extraneous circumstances, calculated to suggest the probability of an attack of yellow fever, little doubt would remain. But suppose the disease had not prevailed in the community, and was not anticipated, what peculiarities would mark the first case in the first stage, so as to enable even an experienced practitioner to decide that the case is an invasion of yellow fever? My answer is, I know of none. I well recollect a case illustrative of the liability of physicians to fall into error in forming a diagnosis in the early stage of aggravated forms of bilious fever. A gentleman visited Boston with a view of purchasing a stock of hides. He suffered considerably, during his absence from home, from fatigue and mental anxiety. On his return he at once exposed himself, for some time, to a cold, damp atmosphere, in repairing a water wheel in a mill race. The result was, an arrest of all cutaneous secretions and exhalations, followed by the symptoms of a violent attack of congestive fever. The attendant physician pronounced it a case of yellow fever. Physicians were attracted from all parts of the country to examine the case; ropes were extended across the street leading to the house, and the citizens of the village forbidden to pass. The most active measures were employed, according to the usual method, for the cure of yellow fever. But the patient died, without a development of any other pathognomonic symptoms than those which mark an aggravated case of congestive fever. His death, in all probability, is attributable more to the harsh depletory treatment than to the disease.

When the primary stage has passed, and especially at about the commencement of the third stage, the diagnostic symptoms are gen-

erally well presented. The primary fever has subsided ; the eyes and skin are tinged with yellow ; there is great prostration, when the third stage sets in, unless a secondary fever should occur. These, with the great gastric disturbance, and especially the black vomit, are the chief phenomena that distinguish this from other forms of malignant fever.

The *prognosis* has always been regarded as unfavorable ; and the term is perhaps correct in a general sense. The disease has generally been characterized by great mortality. Its character in this respect has, however, been much modified by the reform introduced in treatment by Broussais, of Paris. Whenever and wherever the lancet and calomel have been the chief reliance for its arrest, its fatality has been very great ; but under a different mode of medication it has proved much more manageable ; and, as in other grave disorders, the remark is true, that the results of the disease depend much upon the treatment which is to be pursued. Different visitations of the malady vary in respect to their mortality. Sometimes it is very malignant, and nearly all who take it die ; in other seasons its grade is in the general mild, and few fatal cases occur. Its fatality varies also in different periods of the same season ; being generally more virulent when it first breaks out as an epidemic, and becoming more mild as the season advances. It differs also in its malignancy in different districts of the same city, according as the cause is more or less concentrated. All these general views it will be necessary to take, in forming an intelligent estimate of the character of this disease during its prevalence in a community.

Your prognosis in individual cases will, to some extent, regard the general character and tendency of the disorder in the neighborhood. Your opinion of the result of a given case will, however, finally depend upon the favorable or unfavorable character of the symptoms presented. The unfavorable symptoms are, “ excruciating pains in the forehead, back and limbs ; great frequency and feebleness of the pulse — a gaseous state of it, or its entire absence at the wrist ; a blood-shot appearance of the conjunctiva, and a bronze or mahogany color of the skin ; a short and violent febrile stage ; coma or convulsions ; a slow respiration, with deep sighs ; hickup ; excessive restlessness, and a disposition

to get out of bed and walk ; an unnatural apathy, or an expression of dogged indifference ; in the advanced stages, a voracious appetite ; suppression of urine ; a universal hæmorrhagic tendency, with petechiæ ; and finally, the occurrence of black vomit. This last symptom is regarded as almost necessarily fatal ; but occasional recoveries are mentioned by authors as having taken place after its appearance. A total suppression of urine may be regarded as a certainly fatal symptom in adults.

“The absence of the above symptoms must of course be regarded as favorable. A prolongation of the primary fever beyond the accustomed period, the occurrence of a moderate secondary fever, and the appearance of a gentle diaphoresis at any period from the fourth to the seventh day, are also favorable signs.” (*Wood's Practice*, p. 301-2.) In short, any symptoms indicating energy of the nervous system, and a tendency to respond promptly to appropriate remedies, and especially evidences of convalescence, “the gradual cleaning of the tongue from the edges, along with a subsidence of vomiting, and a diminution of the epigastric tenderness,” are certainly favorable.

Treatment. While yellow fever was considered an inflammatory, hepatic affection, the lancet was early brought into requisition in every case ; rivers of blood were shed with a view of allaying inflammation, and pounds of calomel were employed, as combining all the qualities of an antiphlogistic, cholagogue, cathartic and health-insuring alterative. For the philosophy of this system of practice, I must refer you to those who still adhere to the same measures under the circumstances which were formerly supposed to attend this disorder ; for the success of such treatment, I refer to the statistics of yellow fever as recorded in the books. If a different mode of practice had not exhibited more encouraging results, I should feel that very little hope or reliance can be placed on medical experience, in a disease of such fearful mortality. But different and more favorable results have been attained. Just in proportion as old school practitioners have modified or abandoned their depletory, paralyzing efforts, have they presented less horrible bills of mortality ; and wherever a rational mode of medication, similar to that which I am about to detail, has been employed, the results, I am assured, have been highly satisfactory.

I have already told you that I never saw this disease, where it prevailed either as an epidemic or endemic ; but I have met with isolated cases of what I called congestive fever, which exhibited the prominent symptoms of genuine yellow fever, even to the yellow skin and dark ejection from the stomach, answering well to the descriptions of black vomit. And I have found cases of this gravity yield under the treatment I shall describe.

In the early stage of an attack, while the symptoms are still so indefinite as to prevent the formation of a satisfactory diagnosis, though yellow fever may be suspected, the case should be treated in all respects, as regards medicines, as an attack of malarial or bilious fever. If there is derangement of the stomach, a gentle emetic will be proper. This will remove any irritating substances from the stomach, and prepare for the more efficient exhibition of other medicines ; it will rouse the nervous system from the lethargy into which it sinks in this form of disease ; promote, mechanically at least, the action of the liver ; and have a potent influence in determining the blood to the surface, and thus restoring the capillary circulation. I should even be more certain to give an emetic in such a case, than if yellow fever were not apprehended ; for, bear in mind, that should it prove to be this disease, a very brief time may be allowed in which medicines can be of any avail ; and where time is so important, an emetic is peculiarly adapted to our purpose, from the little time required for its operation. Half an hour is generally ample time for accomplishing all that can be done with an emetic. The choice of an agent to be employed for this purpose is important. It should be prompt and thorough in its action, and at the same time mild and easy in its operation ; unirritating to the mucous membrane. These properties are combined in the *Lobelia inflata* ; and the calm, quiet condition of the stomach, which uniformly follows its operation, renders it, in my judgment, the very best article we possess for a case of this kind. The action of the lobelia is very much improved by combining it with *Eupatorium perfoliatum*. A saturated infusion of equal parts of these two herbs may be given, in doses of two table-spoonsfull every ten minutes, until a sufficient emesis is effected.

The febrile stage requires thorough bathing with broke water

and whisky over the entire surface, with friction by rubbing with a towel or the hand. Extensive sinapisms should at the same time be applied along the spine, and to the epigastrium. These tend to divert irritation from the nervous system, and stomach. Warm teas, such as catnip and balm, are highly useful, as they tend to encourage perspiration, and thus diminish febrile action. In short, pursue in this stage a soothing mode of treatment, calculated to allay febrile excitement, equalize the circulation, and relieve any local congestion which may exist. And let it be always borne in mind, that what is done must be done with despatch, and efficiently. The physician should, if possible, see his prescriptions administered, and witness their effect. Do not, if you can avoid it, leave your patient in these malignant cases, and trust to an ignorant nurse to carry out your orders. Immediately upon the decline of fever, or before, if the symptoms denote urgency, administer the medicines which I have denominated antiperiodic. For here you have a malarial fever, depending principally upon the same cause which produces periodic fevers; modified, it is true, by combination with a depressing influence, which prevents, it may be, any tendency to remission; but which must certainly be amenable, to a great extent, to the same remedies as are intermittent and remittent fevers. And here I do not rely on theory alone in recommending this antiperiodic treatment. For it has been tested with the most gratifying results by those who have had the opportunity. In New Orleans, it was first introduced in the epidemic of 1841, by assistant surgeon Charles McCormick, and Dr. A. J. Wedderburn, and has been since extensively employed. "The practice of giving large doses of quinia very early in the disease, is asserted by some to have been attended with great success," says Dr. Wood in his Practice, Vol. I., page 308. Other authorities might be quoted to the same effect, but this is sufficient to show that the treatment called for by my views of the cause and nature of this disease, proves efficient in actual practice, whatever may be considered the particular ground for its exhibition. The remedy does not fail when administered in a proper manner, even though the practitioner's theory may be erroneous. Quinine has done much good in thousands of cases when given under the name of a tonic, though its

real pathogenetic action is certainly that of a sedative. Having, therefore, my own experience in the use of the antiperiodic medicine, in cases which seem to approximate very nearly the character of yellow fever, and finding it successful in the treatment of that very disease in the hands of others, I do, with the utmost confidence, advise you all to employ it when opportunity shall offer.

The sulphate of quinia should be given in doses of six or eight grains, with equal quantity of prussiate of iron; or if the latter disagree with the stomach, it may be omitted. I have recently found much advantage in inflammatory diseases by combining tannic acid with the quinine. The constringent property of the tannin has, I believe, a beneficial effect in repressing inflammatory action in the mucous membrane. Another advantage of the combination consists in the fact that the tannin renders the quinine almost tasteless. The bitterness of the quinine seems to be removed, either by a chemical combination, or by the constringent effect of the tannin rendering the surface of the tongue in a measure insensible. The latter, I am inclined to believe, is the true explanation. The quinine thus combined, or alone, as suits the views of the physician at the time, should be repeated at suitable intervals, until its full effect upon the system is realized; and you need apprehend no injury from its administration, in view of any symptoms the case may present. These, with the various accessory measures which I have so often recommended in other grave forms of fever, would be the means I should adopt, if called upon to treat the disease.

I have said nothing, as yet, of cathartics in this affection. I believe they have been far too frequently employed, under the erroneous notions which have been entertained of the cause and nature of yellow fever. Why should we give a cathartic? Does the diseased action indicate such a measure? If there were evidently accumulations in the bowels, I should favor their expulsion by a mild cathartic. But upon general principles, I see no call for catharticism in this disease. If the bowels are irritated, why increase the difficulty? If the bowels are healthy, why originate mucous irritation by purgative medicines? It is in this very way, I am confident, that untold mischief is done in this and

other disorders, by mercurial preparations. The liver in the beginning of the attack is generally active. But the disease indicates a cathartic, say the books, and the best cathartic is calomel. This is accordingly given liberally, and followed in three or four hours by a saline cathartic. The mucous membrane of the stomach and intestines, especially the duodenum, has now suffered violence, which results in irritation,—perhaps inflammation. The difficulty is extended by sympathy to the liver, and that organ is locked up, and then follows all the train of symptoms incident to hepatic disease.

But, gentlemen, the reign of mercury as the sovereign remedy is waning, and indications at present point to its ultimate banishment from the commonwealth of physic. Even the old school authorities of recent date manifest distrust of this most potent drug, which a short time ago seemed to be the one thing needful, not only in yellow fever, but in almost all diseases. It was the catholicon, the panacea, the physician's staff in all his difficulties, the patient's hope in the valley of despair; the means first tried as disease approached, in hope by potent doses to frighten it away; and then, when strength was gone and aggravated complications had been induced, the last resort and only hope consisted in the possibility of substituting mercurial for other disease, so that if the patient must be lost, his death might be accomplished by scientific means. But such times, I trust, are nearly past, and a brighter day has dawned upon us. True, mercury still has apologists, but their tone is much modified, and where the agent is directed it is apt to be coupled with a contingency, such as, "if calomel is employed," or "it will be necessary that the practitioner should decide, at a very early period, whether he will have recourse to mercury in the treatment of this disease." Men cling with great tenacity to old favorites, and often expressed opinions are seldom unequivocally renounced; but it is encouraging to know that prejudices sometimes die with the men who cherish them, and much is to be hoped from the next generation of medical men.

The lancet, too, is losing its hold on the confidence of the profession, not only in yellow fever, but in various other affections, for the arrest of which it was formerly deemed indispensable.

Recommendations of its use are now associated with solemn warnings of danger, and with intimations that little is to be expected from blood-letting as a means of cure. "The question," says Prof. Wood, "must be decided at an early period, whether it will be requisite to use the lancet." "It is generally considered a hazardous remedy after the lapse of one or two days. Bleeding will not cure the disease, nor should it be vaguely employed with this view." Subsequently, speaking of prevention, he says, "attempts to guard against the disease by low diet, bleeding and purging, or the use of mercury, are futile, and even worse than futile. The feebler the system, the less is it able to resist the entrance of the poison or its influence when absorbed." Please observe these quotations, gentlemen: "bleeding will not cure"—it will not prevent. In all sobriety I would then ask, for what purpose we should resort to so hazardous and so useless a remedy. But such is the truth, and such is the doctrine for which, as a medical school, we have so long contended. "The feebler the system, the less is it able to resist the entrance of the poison, or its influence when absorbed." This doctrine, gentlemen, is unmitigated Eclecticism—which, when applied to other measures and diseases, is as certainly true as when advanced in relation to the lancet in yellow fever, and a consistent adherence to it will terminate the blood-letting epoch, and will introduce fully the reform for which we are struggling, and for which the world is well nigh prepared.

Should you first see a patient in the period of prostration, the quinine must not be delayed a moment. Its introduction should be prompt, in full doses, and its retention by the stomach favored by anodynes, carminatives, or stimulants, as the case may require. Oil of turpentine and capsicum combined with quinine has been recommended, and the prescription strikes me as one well adapted to the case. Let the strength of the patient be sustained by every means that can be employed. Mild and bland nutriment, such as gruel and weak animal broths, bread-water, or milk and water, as the stomach can be induced to retain them, are important means for this object. Sinapisms, as recommended in the former stages, are equally important now, and even a blister over the stomach might be of much service, by its prompt revulsive

influence. The circulation should be invited to the extremities by drafts on the wrists and ankles, and stimulating frictions should be used over the whole surface.

Should you be so fortunate as to induce a reaction, and get your patient into a convalescent condition,—and I confidently believe you will do so in a majority of cases where you are called at an early period of the attack,—you will then have the general principles for your rule, which govern in the management of convalescence from all depressing fevers. Husband carefully the remaining strength, employ proper tonics, and allow wholesome, digestible food, increasing the quantity gradually as the patient gains strength. Let moderate exercise be taken within doors, or in the open air, where there is no exposure to infection. And here I will say, what I might have said before, that wherever it is practicable, I should be in favor of removing every patient at once to a healthy location, as the chances of recovery are thereby greatly increased.

There is one more point in connection with this pestilence, upon which I desire to make a remark or two, and that is, the means of prevention; for in this case the old adage is emphatically true,—“an ounce of prevention is worth a pound of cure.” Public authorities should see that general cleanliness is observed by the whole community. All ponds should be drained, where deposits of vegetable or animal matter are liable to collect and be left to decompose. Sewers should be provided to carry off the filth of the city, and the back yards and cellars should be duly inspected, together with every other place where miasm is likely to be generated.

During the prevalence of the disease, all who can should leave and avoid the infected district. Those who cannot avoid exposure to the cause by removal, should avoid the night air, and sudden changes of temperature; they should sleep in the highest part of the house; be moderate in taking exercise, avoiding fatigue and mental excitement; their food should be generous and nutritious, though not stimulating, and they should never expose themselves to infected air with the stomach empty, or when the system is exhausted by labor or loss of sleep.

LECTURE XIV.

TYPHOID FEVER, OR CONTINUED FEVER.

Preliminary Remarks—Synonyms—Mode of Invasion—Febrile Symptoms—Different Periods of Progress described—Sometimes Periodic—Tympanites—Peculiar Discharges—Petechiæ—Sudamina—Subsultus Tendinum—Posture of Patient—Fatal Case—Mode of Death—Duration—Favorable Result—Convalescence—Sequelæ—Anatomical Phenomena.

We come now to speak of a variety of fever having distinct and well-defined characteristics, differing, in many respects, from any of the forms we have hitherto considered, and worthy of deliberate attention and thorough investigation. I mean *typhoid fever*.

This fever has, perhaps, been the subject of as much careful and calm discussion and recondite investigation, and has been observed with as close scrutiny in its entire train of phenomena, as any other disease to which the profession has given attention; yet there are many things connected with it still veiled in obscurity, and requiring further research and observation.

In regard to the name of the disease, I remark, that I use the term typhoid fever for want of a better. It is the title by which the disease is described in most of the recent authorities, but it is not descriptive of the nature of the disease, nor expressive of its cause. In fact, there is some objection to the term typhoid as applied to this particular disease, from the tendency which exists to refer to the original word typhus, as denoting the same disease. Now, although typhoid is an adjective, derived from the noun typhus, and, when applied to a low condition, such as sometimes

attends protracted fevers, expresses the idea that the symptoms are similar to those of typhus fever—they are “typhoid symptoms”—that is, symptoms resembling those of typhus—yet the term, when employed as the name of the specific disease now under consideration, loses, in a degree, its descriptive character, and becomes an arbitrary name. You will please, therefore, remember the distinction between typhus and typhoid. By typhus fever, I mean that modification of bilious which I have elsewhere denominated congestive fever; by typhoid fever, I refer to a distinct and very different disorder, originating in a different cause, and presenting, for the most part, symptoms of a different character. The name typhus has, I believe, been applied to this disease in New England, where the true typhus does not prevail; but those who have had experience in both fevers, will have little difficulty in distinguishing between them. The researches of M. Louis and other European writers, have very satisfactorily determined the character of this disease; and the term typhoid is preferred by them, and adopted by most American authors; while Ware, Jackson, Hale, Gerhard and others, have, in various observations, made at different times and in different parts of the Eastern States, fully shown the identity of the typhus of those sections and the typhoid of Louis and others.

The disease under consideration has been called *nervous fever* by some authors, from the symptoms of nervous disorder which attend it; some French writers call it *entero-mesenteric* because the intestines are always found diseased in fatal cases; and Bretonneau calls it *dothin-enteritis* (from *δοθιν*, pustule, *ἔντερον*, intestine), to denote the character of the intestinal affection; *follicular enteritis* has been applied to it for the same reason; Prof. Wood proposes the term *enteric fever*, but this might cause it to be confounded with other forms of gastro-intestinal inflammation; some still adhere to the old name of *continued fever*. These numerous efforts to furnish a suitable name, while they are somewhat interesting, as they indicate, in some measure, the character of the fever in question, have certainly resulted in considerable confusion; to avoid which, and to avoid, also, the fault of authors in furnishing a name of my own devising, I shall designate the disease by the term first mentioned, with the express understanding

that I use it rather as an arbitrary cognomen, than as a descriptive appellation, although this disease is attended with many symptoms similar to those of typhus or low congestive fever.

The invasion of the system by typhoid fever is remarkably insidious. Few diseases are as slow in their approach as this, its inroads being at first almost imperceptible. So gradually does the morbid influence develop itself, that patients are frequently unable to say when they first began to be unwell. The period of invasion varies in duration from a day or two to as many weeks. Perhaps the average length of time occupied by what may be called the premonitory symptoms, is about six days. It is said by some authors that the disease sometimes comes on suddenly, with a chill followed by fever. Of this I have doubts, for I am inclined to believe that practitioners have been accustomed to mistake low forms of bilious fever, coming on with a chill and finally developing typhoid symptoms, for this disease. I myself have seen cases which might easily have misled one who was not on the alert. The question with me formerly was, indeed, whether typhoid fever itself might not be regarded as a peculiar modification of one of the ordinary forms of fever, owing to enteric disease; though more recent observations have satisfied me that we have a form of disease requiring an independent and distinct position in the catalogue of fevers, and this is the one to which I apply the term typhoid fever; but I repeat, that it is very doubtful whether it is ever introduced suddenly, by chill and fever.

Its mode of approach does, however, vary in different cases. In some, the symptoms are palpable and characteristic, almost from the first, while in others they are indefinite and inappreciable for some time, the patient feeling weary, listless, and dull, with an indistinct soreness in the limbs; finally he begins to "feel unwell," a headache comes on, the skin becomes hot by spells, with alternate chilly sensations. Where the disease comes on more rapidly, these same sensations are experienced earlier, and, instead of an undefined listlessness, there will be a feeling of fatigue and even debility; there is a disinclination to walk, or take other exercise; the limbs feel sore, and often there is actual lameness. The appetite fails, partially or altogether, so that if food is taken, it is not relished as usual. Sometimes the appear-

ance of food of the best quality will produce nausea. The bowels are perhaps slightly constipated, or there may be a tendency to diarrhœa, not sufficient, however, to be recognized as disease. The skin becomes dry, and flashes of heat are experienced, while the pulse is accelerated, the head aches, and a creeping, chilly sensation is occasionally felt along the back, passing off in a moment, and followed by a glow of heat. In a short time another chilly sensation will be felt, followed by heat, as before. While these symptoms are progressing, the patient feels very restless and irritable, perhaps, though this feeling is not so prominent here as in bilious fever. The tongue is but slightly coated, if at all, while in bilious fever there is usually a heavy coat upon it.

The disease is now fairly commenced. The febrile symptoms continue; the pulse becomes more excited and frequent—not full and bounding, as in bilious fever, but hard, wiry, quick, and frequent. The bowels will not yet, perhaps, manifest positive disease; there will probably be loose discharges—not watery, nor very frequent, but two or three motions of the bowels during the day. The urine will not be found, generally, so scanty nor so high colored as in most other fevers, though it will become more so as the disease progresses. The bowels will be found peculiarly sensitive to the action of medicines, requiring, perhaps, less than an ordinary dose to produce hypercatharsis—and this is an important fact to be borne in mind during the treatment. The skin, at this stage of the disease, becomes sensibly more dry and harsh. There is not a decided pungency on application of the hand, as in congestive fever, though there is a palpable increase of temperature on the body. Headache is still a prominent symptom in most cases, and sometimes is the principal subject of complaint. This symptom differs much in different persons, but it is very seldom entirely absent. Thirst is an early symptom, and is frequently extremely urgent, especially under mercurial treatment. This circumstance was the occasion of dreadful suffering, in early times, yet within my recollection, when the use of water was forbidden as incompatible with that of mercury; but fortunately this barbarous practice has been suspended; not, I apprehend, from considerations of science, but of expediency.

The face of the patient is usually flushed and shining, though

less so than in congestive fever. The skin assumes a dusky hue, and there is a dull or obtuse expression of the countenance, increasing as the disease advances. The tongue is not yet much coated, though a fur may make its appearance, with perhaps redness of the tip and edges of the organ. The stomach sometimes becomes irritable, if it has not been so before, and the tendency to disturbance of the bowels will probably be increased. Pains may be felt in the bowels, which will be increased by pressure on the lower portion of the bowels, especially on the right side, and generally a tympanitic condition of the abdomen is perceived on percussion. The irritated condition of the skin and mucous membranes is often extended to the bronchia, and a cough, either dry and hacking or attended with mucous expectoration, will set in. This may, indeed, become a very urgent symptom, and require special attention. In such cases physical exploration will detect a dry, sonorous rale, extending sometimes over the whole chest.

The progress of the disease, as thus marked, generally reaches the seventh, eighth, or ninth day from its development. If it occur in an atmosphere where vegetable malaria exists, there is very apt to be, during the early stage, a tendency to remission daily, or every alternate day. This it is important to bear in mind, as it will exert a practical influence on your mode of treatment. By remissions here I do not refer to temporary seasons of apparent relief from fever, during which perspiration may perhaps break out upon the forehead, face, and neck. These generally occur frequently every day, at irregular intervals. But I speak now of regular quotidian or tertian revolutions, generally the former, which are denoted by a regular and gradual decline of the febrile symptoms, until a remission, more or less perfect, is perceived. The remission generally occurs in the morning, the fever rising again towards evening, increasing, it may be, till midnight, and then again gradually diminishing—marked all the time, however, in most cases, by the irregular alternations of which I have spoken.

Although the progress of this fever is so very slow that its victims do not generally regard themselves as much sick for several days after the attack, yet the practiced eye and hand of the physician will soon detect evidences of serious disorder. The peculiar

febrile action, the hard, wiry, frequent pulse, the sensitive mucous surfaces, especially of the bowels, all point to serious lesion, not to be hastily removed by remedies now within our knowledge.

These symptoms continue, increased probably in intensity, and others are superadded. The tongue becomes more dry, and perhaps somewhat darkened in color in the middle, while the edges and tip continue red; the saliva will have a cottony appearance, and the tongue, when protruded, will seem inclined to curl up at the sides and extremity. The throat will be dry, feel sore, and deglutition will be painful and difficult in many cases. You will now find the abdomen much extended, and percussion will produce the hollow or tympanitic sound. The looseness of the bowels will, probably, be increased, and a slight purge would now produce a hypercathartic action, which would continue for several days. Hence, it is evident that such medicines will merely aggravate the difficulty. The evacuations are now watery in their character in most cases, whether they are the spontaneous production of the diseased bowels, or are induced by the injudicious administration of a cathartic. They are of a dirty yellow color, resembling a thin watery gruel in appearance, and the smell is exceedingly offensive. There is one phenomenon often observable in the alvine discharges in typhoid fever, which I have never seen in any other disease, and that is, the existence of small red specks on the surface of the evacuations, having the appearance of little particles of bloody mucus. And now, by examining the surface, you will be pretty certain to find a particular diagnostic symptom, to which I call special attention, for it is peculiar to this fever. I refer to the appearance of small red or purple spots or eruptions, resembling flea bites. They may be found first, perhaps, on the abdomen, but extend over the whole body, and especially to the extremities. These eruptive spots are called *petechiæ*, and they are to be recognized by the appearance of circumscribed prominences on the skin, obliterated by pressure, but reappearing shortly after the finger is removed. Accompanying this symptom is often observed another eruption, differing from it essentially in character, though scarcely less diagnostic of the disease. This is the *sudamina*, consisting of minute vesicles, filled with lymph. The vesicles vary from the size of a millet

seed to that of half a buckshot, and are found principally on the neck and upper part of the chest, sometimes extending to the abdomen, but seldom, if ever, to the limbs. This eruption may be easily overlooked, owing to the colorless transparency of the vesicles; but upon applying the hand to the skin, they are easily recognized, being more prominent than the petechiæ, and imparting a peculiar sensation of roughness to the touch, unlike any thing else.

At this stage of the disease, the nervous disorder begins to present more decided symptoms. There will be slight delirium, or it may be a tendency to stupor, with tremors and twitchings of the muscles, when the patient reaches out his hand. The first indication of delirium which is observed, may probably be an increased brightness of the eyes, which might lead a casual observer to suppose the patient is much improved; but very soon signs of mental hallucination will be evinced by his motions or language. I have said that there may be a tendency to stupor, but generally the opposite is the case; the patient is wakeful and very restless. There is a buzzing sound in the ears, which may be compared to the rushing of a current of water; similar, in fact, to the sensation produced by full doses of quinine. The eyes become injected and somewhat red in appearance, with a vacant stare, and the patient will seem to have an imperfect perception of objects, though, on first looking at him, you would suppose his eyes were unusually clear and bright. The tongue can with difficulty be put out of the mouth, and it may be observed to have a trembling motion. This difficulty of motion is not owing, as in typhus or congestive fever, to a swelled and cracked condition of the tongue, but to an inability to direct or control the muscular actions by the will. This inability, in fact, extends in some measure to every other muscle, as is manifest when the patient attempts to change his position, or use his limbs.

The symptoms just described continue through several days, in some cases increasing more rapidly than in others, but generally with a steady advance in the morbid manifestations, until the *typhoid* condition is fully presented. Now the patient lies, perhaps, in a partially comatose condition, if undisturbed; though he

may be aroused without much difficulty. His mouth is kept open, and his breathing is heavy and laborious. A peculiar, dark deposit, called *sordes*, appears upon the teeth, and sometimes on the lips, and by breathing constantly through the mouth, the moisture is carried off, and the tongue left in a dry, parched condition, somewhat resembling its appearance in congestive fever; but close inspection will enable you to perceive that this dry state of the tongue is not owing to an irritated, inflamed condition of the organ, but merely to the evaporation caused by the breath passing over it. The pulse is generally very frequent at this stage of the disease, though there is much variety in this respect in different cases. It may be as low as 85 per minute, or it may reach 150; and the gravity of the disorder may, perhaps, be regarded as being more or less serious, in proportion to the frequency of the pulse. It is generally not only frequent, but very feeble; though it may still retain a hard, corded character. There is still a hot skin, though this may not be uniform; some portions of the surface may be hot, and others cool. The heat here is somewhat pungent, but less so than in congestive fever; and there is a peculiar odor arising from the body, and perceived in the breath, which is very unpleasant, and difficult of description, though it is readily recognized by one who is accustomed to the disease. It is not so offensive and nauseating as the odor which characterizes the last stage of congestive fever, but it is very disagreeable and sickening. *Subsultus tendinum* will generally be witnessed in connection with the symptoms now described. This is the trembling of the muscles, of which some mention has already been made, and which sometimes is increased to such a degree that the patient is unable to hold a glass of water in his hand. This inability to control the muscles increases, until there are finally established constant successions of involuntary motions. There is an indefinite reaching or grasping with the hand, or a constant picking at the bed clothes. This cannot be regarded as specially diagnostic of this disease, as it generally appears in other forms of low, nervous disorder, but it is always a very formidable symptom; though I have known recoveries after its appearance. There is another fact worthy of notice, though not confined to this disease, but observable in most low

fevers, especially where there is intestinal disease. It is the *position* of the patient. He lies on his back, with his knees drawn up, and with a constant tendency to slip down towards the foot of the bed. Another circumstance may be observed in this, as well as other low forms of fever. There will probably be frequent *involuntary discharges*, from the bowels and bladder. This may arise from unconsciousness of what is being done, or the patient, in his confused, dreamy state of mind, may conceive himself to be in the proper position for voiding these accumulations. Sometimes there is almost entire *retention of urine*. *Hemorrhage* from the bowels often occurs in the advanced stage of typhoid fever. This occasionally is seen in congestive, and perhaps in yellow fever. I saw a case of congestive fever but a few days ago, in which there was a copious discharge of bloody matter from the bowels; but this is more common in typhoid than in other forms of fever. *Epistaxis*, or bleeding from the nose, is not an unfrequent occurrence, and in some cases it proceeds to an alarming extent.

The petechiæ are increased on the skin; and here I desire to point out a difference between this and an eruption frequently seen in the last stage of congestive fever. In the latter disease, you will not see the small rose colored spots scattered over the surface, especially on the hands and wrists, but a more irregular and extended eruption, of a reddish hue,—the spots being more numerous, of a higher color, and appearing like an effusion of blood in the cellular structure; the color not receding on pressure, as in typhoid. Sometimes vibices, or large purple spots, make their appearance on different parts of the body, owing to the devitalized condition of the skin. Owing to the same cause, too, eschars will be produced in parts subject to pressure from long confinement of the body in one position, as on the hips or sacrum. There will first be produced a small blister at the point where pressure is long continued; this will be extended, the surface will become raw, and, owing to the want of vital force, there is a tendency to gangrene, and the skin may entirely slough away, leaving the process of bone exposed. I have seen a case where a slough came off as large as my hand, and so deep as to

expose the vertebral spinous processes, and yet the patient recovered.

If the disease progress, with an increase of these symptoms, the case must soon become very formidable. The pulse loses its remaining force, becomes hurried, perhaps fluttering; or it may become very slow and weak, and disappear from the wrist occasionally. A clammy sweat will cover the skin, the extremities become cold, and death steals upon his victim as slyly and insensibly as did the disease in its first approach. Sometimes, however, the vital forces give way more suddenly, and the patient dies with agonizing struggles.

Such is the usual course of a fatal case of typhoid fever. As has been remarked, the course frequently varies, the symptoms do not appear in the same order, nor with the same relative degree of malignancy in some cases as in others. The duration, too, is quite variable; for though the disease is usually slow in running its course, yet cases are spoken of in the books, where death occurred as early as the sixth or seventh day. It generally occurs, however, during the second and third week, though it may be deferred much longer.

Where a case is to terminate favorably, a moderation of some of the symptoms will be observed, generally, during the second or third week. The tongue will appear more moist, and the coat upon it will be gradually removed; the pulse will improve, becoming less frequent, and acquiring more volume; the skin will assume a more natural appearance, and cooler temperature; the nervous symptoms are diminished; the mind of the patient becomes clearer, and he manifests greater interest in his own case, and observes more intelligently what is transacted about him; the tension of the abdomen becomes gradually lessened; the dejections assume a more healthy appearance, and less offensive smell; the thirst is less urgent, and some desire for food may be expressed,—or a willingness, at least, may be manifested to take it when offered. In short, there is a general but very gradual resolution of all the morbid conditions, and the restoration, by degrees, of the various organs involved, to their healthy functions. But these recuperative changes progress slowly, and convalescence is usually tedious; requiring from five or six days, in a very mild

case, to as many weeks, where the attack has been very severe, and the organic lesions extensive.

The beginning of convalescence is, however, generally more tedious than its subsequent progress. Indeed, it often happens that after the patient becomes able to take nutriment, and the processes of digestion and assimilation are commenced, and he begins to use his limbs in moving about, his recovery will be remarkably rapid. Sometimes, however, there is an acquisition of flesh beyond that of strength, and the patient will feel a considerable degree of debility, while his appearance indicates full flesh, or perhaps a bloated condition. The appetite is sometimes insatiable, and its indulgence may lead to a fatal relapse. Where the course of the disease has been very severe or protracted, or where injudicious treatment, such as bleeding or mercurial ptyalism, has produced great prostration of the powers of life, and an impoverished condition, both of the blood and solid tissues, a long train of unhappy and discouraging symptoms may haunt the unfortunate patient for weeks or even months. Symptoms similar to hectic fever: night sweats; depressing nervous disturbance; anasarca, or at least an edematous condition of the legs and feet; annoying and tedious abscesses; loss of the hair; and other unpleasant sequellæ, may follow.

The *anatomical phenomena* developed by post mortem examinations, next claim our attention. Chomel divides the morbid appearances into *constant* or *characteristic*, and *occasional* or *accidental*. Perhaps no other disease has given rise to as many post mortem explorations as typhoid fever. Having prevailed in some places to a great extent, and in some localities and especially under certain modes of treatment, proved very fatal, the profession have not been at a loss for opportunities to make autopsic researches as to its morbid phenomena. It has formed a subject of careful and critical investigation, by the most intellectual and learned men in our profession. While local phenomena were supposed to demand paramount consideration in determining the nature of any disease, and consequently the minutest changes in any of the organs were matters of very great interest, observations of this kind were prosecuted with commendable zeal; and volumes have been written, article after article published, medical

minds and hands and eyes have been actively engaged throughout the world, or at least wherever this disease has made its appearance, for the purpose of developing its character, and learning from its footprints something of its origin and course; and one would suppose the subject must now be perfectly elucidated. But such is not the fact; many points still remain in obscurity, and the main object of research,—the cause of the disorder,—is still a subject of doubt and controversy.

It is said by Louis, whose labors have thrown more light upon the subject than those of any other man, that in half the cases of death from typhoid fever examined by him, the heart was softened and diminished in volume; but this I do not regard as a peculiar mark of this disease, but a condition common to low and protracted forms of fever. Another circumstance not peculiar to typhoid, but frequently observed in connection with it, is a fibrinous structure in the heart and aorta. I referred to this in a former lecture, and only mention it here in passing. I will add, however, that I have seen this structure three or four inches long, and entirely closing up the aorta. It is said that blood drawn from the arm during life does not present the buffy coat and cupped appearance considered pathognomonic of inflammation, unless there be a complication of some inflammatory affection with the main disease. Its autopsic and chemical examination after death has furnished little or no information of value. It is said to be deficient in fibrin, and it is thought that this diminution is in proportion to the severity of the symptoms. While speaking of the blood, I will take occasion to remark, that there are some important and stubborn facts which go to show that the buffy coat does not necessarily indicate inflammation. Hamilton says the blood from a patient under the influence of mercury has the buffy coat; and yet who ever ascribed inflammation to mercurial action? Is it not declared to be peculiarly antiphlogistic? Until the relation of the peculiarities of the blood to morbid action during life shall be a little more definitely ascertained, little reliance can be placed upon its post mortem condition.

The *lungs* have often been found diseased, but there are few if any members of the profession who believe that disease of these organs bears any special relation to typhoid fever. The most

frequent morbid condition of the lungs, following this fever, is that which has been described by Louis, as resembling, in color and appearance, the natural condition of the spleen, and named by him *splenization*. The propriety of this description is, however, disputed, as the color of the lungs is not like that of the spleen, but is a "bluish red," and when cut there is an effusion of a thick, red fluid, and the affected portion of the lungs has a specific gravity greater than water. The lower and posterior portions of the lungs are most frequently involved,—owing, probably, in some measure, to the influence of position. The mucous membrane of the air passages is also occasionally found in a diseased condition, exhibiting considerable traces of vascular engorgement, and in some instances there is disorganization, extending even to adjacent structures.

Lesions of the *brain*, or of its membranes, from the severity of the symptoms referable to this organ, might readily be supposed to exist. But in this, as in other diseases, we frequently fail of detecting physical changes in this organ, bearing any reasonable proportion to the symptoms observed in the progress of the fever. This, however, need not produce much surprise, since observation has satisfactorily determined the fact, that extensive functional disturbances do frequently exist for a long time, without any traceable organic change being produced. The knowledge hitherto obtained from post mortem examinations of the brain, in relation to its diseases, is not in fact as satisfactory as that furnished by similar researches in most other organs of the human system. Future observations, with the advantages of the microscope and of chemical analysis, which modern science enables us to bring to our aid, will, it is hoped, result in the explanation of many symptoms pertaining to this and kindred diseases. Suffice it to say, that where organic changes are observed at all, the one most common, perhaps, is an effusion of serum between the arachnoid and *pia mater*, with traces of sanguineous engorgement of the latter membrane, and of the medullary substance; while, in rare instances, there may be observed either "an increase or diminution in the consistency of the brain."

Let us now examine the alimentary track. In the *pharynx* and *esophagus*, but especially in the former, traces of organic change

are occasionally exhibited: such as cankered or ulcerated points, or sanguineous engorgements. The *stomach* still more frequently presents evidences of morbid action. But these differ greatly in extent in different cases,—from a slight appearance of inflammation, to a general softening of all the organic tissues; from small aphthous points in the mucous surface, to extensive ulceration, involving, in some instances, all the coats of the stomach. And it is perhaps worthy of remark, that the structural lesions of this organ often exceed, in extent, the changes we might reasonably anticipate by observing the symptoms of gastric disorder during life. This, however, is not always the fact, for we often meet with cases where there is great irritability of the stomach, especially in the early stages. In some instances there is even protracted vomiting of bilious matter.

But of all the lesions which post mortem examinations have revealed, as connected with typhoid fever, none are so uniformly present, or so peculiar in character, as those found to exist in the small intestines. Not only are they constant, but strikingly similar in different cases—varying merely in extent, or by complication; but almost always presenting characteristic peculiarities, believed to have been observed in no other disease.

The contents of the small intestines are somewhat peculiar, though they are not considered pathognomonic. As might have been anticipated from the tympanitic state of the abdomen, during the progress and especially towards the termination of the case, the small intestines are found more or less filled with flatus; while the fluid contents are usually quite thin, mixed with mucus, and of a dirty yellow color; though sometimes the color is more bright, and the appearance is more bilious; and in those cases in which hemorrhage from the bowels had occurred, the color was red, as if stained with blood. Sometimes there is a considerable amount of dark grumous, or coagulated blood.

Independent of the specific local lesion which I shall presently describe, the mucous membrane, throughout a large portion of its extent, is sometimes found more or less injected, or otherwise changed from its healthy state; this injected condition is however more frequently found to exist in separate zones or distinct patches. The morbid action indicated by this red color and altered appear-

ance, has sometimes been so intense and protracted that an extensive softening of the mucous membrane is found to exist. In some protracted cases, the color, instead of being red, has a grayish cast. Sometimes there is a thickened condition of the mucous membrane, with or without a darkened appearance; while in other instances it seems somewhat diminished, and changed in consistence, so as to have the character of, or to "resemble, an unorganized pulp, spread like a layer of paste over the subjacent tissue."

But the lesion to which reference has already been made, and which is believed to be characteristic of this disease alone, consists in the altered condition of those elliptical plates found principally on the surface of the ileum, and denominated Peyer's glands. The abnormal condition of these glandular patches varies in different cases, according to the violence and continuation of the diseased action, and the peculiar constitutions or susceptibility of the patients. In some cases there is merely a thickened condition of the elliptical patches, their edges being raised above the surface of the surrounding mucous membrane, with an engorgement of their subjacent cellular tissue. The surface of the raised plates may be smooth, or it may present a granular appearance.

In others the morbid action has proceeded in such a manner as to produce redness and softening of the mucous membrane and cellular tissue; this is more commonly the condition of those cases which have an early termination. But in a vast majority of cases, in addition to a hypertrophied state of these glandular plates, they are found to be ulcerated to a greater or less extent. The ulcer may be a mere point on the surface of the plate, or it may occupy the fourth, half, or whole of its surface; for in some cases the whole patch is destroyed, and its place occupied by an ulcerated surface, surrounded by a raised edge. All these different conditions may, indeed, be found in the same intestine; the glands in the upper portion of the tube being least affected, and the lesion being found more and more deeply marked as we pass down towards the ileo-cæcal valve, in the vicinity of which the most numerous and extensive ulcerations are generally found, which sometimes involve the muscular and even the peritoneal coat, resulting in perforation of the bowel and the escape of its contents

into the peritoneal cavity. The number of patches in which these pathological changes occur is quite variable, ranging, according to M. Louis and others, from twelve or less to about forty. But the ulcerations are not always confined to the aggregated glands, but those denominated solitary glands are often, I might say, more or less affected, especially in the lower portion of the ileum. These, by Bartlett and others, are called Bruner's glands, but this is erroneous, Bruner's glands being found in or near the duodenum only, while the solitary glands proper are spread over the whole surface of the small intestine.

Changes of the *mucous membrane*, and occasional ulceration of the cæcum and colon, have been observed, in protracted cases.

That persons frequently recover from this disease, after ulceration of the intestine has occurred, there can be no doubt; and it is believed that the lesion in such cases is so completely restored that not even a visible cicatrix remains, as no such appearance has been detected in the intestines of persons dead from other diseases, and known to have recovered from typhoid fever.

As might be expected, the *mesenteric* glands always exhibit more or less pathological change from typhoid fever. Where death occurs before the end of the third week, the principal peculiarities will generally be found to consist in a rosy color, increased size, and softened consistence. In more protracted cases, the volume may be diminished, the consistence less soft, and the color will be changed to a gray, perhaps violet shade, and in some cases there are found purulent points containing a yellow deposit. The extent of the affection of these glands corresponds very nearly, both in extent and degree, with the diseased condition of Peyer's glands. The glands of the meso-colon are generally more or less affected, and so, too, are the lymphatic glands throughout the system; and, since the mesenteric and lymphatic glands generally are not often changed from their normal appearance by other acute diseases, their diseased condition may be regarded as, in some measure at least, pathognomonic of typhoid fever.

The *spleen* is nearly always found enlarged, generally softened more or less, and darkened in color. The *liver* is less frequently affected, the most common change being that of softening, with

some loss of color. Most generally, however, there is little evidence of disease, either in the liver or gallbladder. The *pancreas*, *salivary glands*, and *urinary* and *sexual* organs are not affected by this disease, except incidentally, as in other fevers.

The more minute and complex phenomena which have been the subject of observation by pathological anatomists, I deem it unnecessary here to detail. I will merely refer you to such writers as Louis, Chomel, Bartlett, Gerhard, and others, for further information on this subject.

LECTURE XV.

TYPHOID FEVER—CONTINUED.

Cause—Doctrine of Contagion considered—It is Infectious—Difference between Infection and Contagion—Influence of Acclimation, Age, and Sex—Nature of Typhoid—Diagnosis—Prognosis—Treatment—General Remarks—Dr. Jackson's Method—Chomel's—Louis'—Statistics.

In regard to the cause of typhoid fever, a great diversity of opinion is entertained, among the most learned of the profession. Some contend, with great earnestness, that it is specifically contagious, and cite instances that may seem difficult to explain, to sustain the contagious character of the disease. Others again, equally entitled to confidence, from extensive observations, express themselves without any doubt in regard to its non-contagious character. It has always been a difficult matter to reconcile these apparently conflicting facts, and, in view of the fidelity of the statements, made by individuals standing before the world and the profession both unimpeached and unimpeachable, on both sides of the proposition, it may be thought impossible to do it. But in reviewing the whole subject, and examining the arguments and facts adduced by the partizans of both doctrines, I have at length, I think, discovered a satisfactory solution of the difficulty, by which the facts claimed by both are readily explained and reconciled.

From its most general prevalence “where human beings are crowded together with insufficient or unwholesome food, in confined and vitiated air”—such as hospitals and ill ventilated prisons; the densely populated, crowded, and filthy portions of

cities ; among the soldiers of large armies, in camps ; and in the close and crowded holds of emigrant ships—the generally accredited opinion is, at the present time, with most members of the profession, both among contagionists and non-contagionists, that it is caused, in some way, by the effluvia arising from the decomposition of animal matter ; or, in other words, that it results from a poisonous animal malaria.

This conceded, it does not matter in what this effluvia consists ; whether it be in the form of animalculæ, mephitic gas, or animal fungi—either of which will equally explain the facts. But from this statement it will be seen that it may be either a contagious or infectious disease, and the difficulty is not thereby removed. Let us see, however, if it can not be reconciled better with one than the other.

The laws of contagion are peculiar, and subject to few exceptions. All those diseases admitted to be contagious have their uniform periods of incubation, or latent periods ; their regular rise, progress, and decline, without any considerable variation, unless by some accidental occurrence they are made otherwise ; and they are uniformly propagated by exposure. Such, it may be said, is the case with all those contagious diseases of which we have any knowledge, and we conclude, therefore, these are the laws of contagion. In this definition we include that class of contagious diseases known to be propagated without the necessity of actual contact ; making a distinction between those thus communicated and those requiring immediate proximity to the poison to be taken—such as venereal, gonorrhea, itch, &c., which clearly are not subject to the same laws, and I apprehend should not be comprehended in the term contagion, in its ordinary acceptation. These latter diseases, though they may be communicated directly from one person to another, are not governed by those general laws peculiar to the class of contagious diseases of which I am speaking ; and I think, therefore, should be regarded as propagated by what may be styled *limited* contagion, or perhaps with greater propriety, *local* contagion.

How is it with typhoid fever ? Its latent period is irregular and uncertain, varying from twenty-four hours to nearly as many days ; and its rise, progress, and decline are little more regular

or determined than its period of incubation—in some instances continuing from four to six weeks, in others terminating in a few days; and exposure to the disease is not necessary to its propagation, for it often has a spontaneous origin. We conclude, therefore, it is incompatible with the known laws of contagion, and hence cannot be contagious.

How, then, it may be asked, can we explain those instances cited by Nathan Smith, M. Gendron, and others—and no doubt similar instances have been observed by most physicians of any considerable experience and observation—where patients having the disease in full force, have been taken into a healthy atmosphere, where it had not previously prevailed, and from which other cases have arisen. This, then, is the question, and the only one that can present any difficulty in the way of reconciling its character with the ordinary principles of infection. Let it be remembered that contagion is capable of being communicated directly from one person to another—in other words, some recondite influence is thrown off from the system, in a certain stage of contagious disease, which, coming in contact with a system not previously protected, produces a disease of like character. Not so with infection. This, though governed by certain laws peculiar to itself, is caused or developed by an influence generated out of the system, and a person exposed to it, and susceptible to its influence, will have a disease similar, in all its essential characters, to the diseases of others, exposed in like manner. This infectious matter may be furnished by the human system, in health or disease, or by other animal matter, or by vegetable substances undergoing a change by decomposition, and producing an agent capable of developing a disease of a peculiar and specific character, each in its own way, and of its own kind. It has already been said that the weight of testimony concedes to typhoid fever an origin from the decomposition of animal matter or *idio-miasmata*. Thus a case of typhoid fever, originating from any of those circumstances capable of producing it, and leaving behind all those materials to which vomica can adhere, taken into an atmosphere pure and healthy, may, during the continuance of the disease, eliminate from the system animal matter, or some of its elements, in sufficient amount, which, when favorably circum-

stanced, will undergo further change by decomposition, and thus produce or generate a poison of a similar character to that which infected the system first diseased, and in that way propagate the disorder to those about it. Now here is the distinction. The poison generated at certain periods of contagious affections produces, *as eliminated*, or *formed*, without any subsequent change of the poison, a similar disease in those exposed to it. The infectious poison, on the other hand, requires a combination of circumstances extrinsic to, and in no wise *necessarily* connected with the system thus disordered, for its production; but animal matter, in some way, must be furnished, either after it is thrown off from the system in its diseased condition, or from others in a healthy state—or it may be furnished from some other source—though most probably it is eliminated during the existence of organic or functional derangement. In either case, however, a subsequent change or decomposition in the matter thus furnished, is necessary to its infectious properties. In this view, typhoid fever is infectious to the same extent that intermittent or remittent fever is, and requires an exposure in a similar way, with this difference only—one is produced by vegetable and the other by animal malaria, the two poisons being, no doubt, governed, in some respects, by different laws.

In regard to the supposition that the insusceptibility to a second attack affords an objection to its infectious character, I will barely remark, that many other propositions are better determined than the immunity thus claimed. In New England, where I was raised, and where typhoid fever may be almost regarded as endemic, second and third attacks were too frequently witnessed to constitute mere exceptions to a general rule; and I am acquainted with no facts which, in my judgment, show an immunity from second attacks of this disorder, beyond the acknowledged tendency of infections generally to fortify the system, which has sustained an attack, against future invasions. The power of different infections probably differs in this respect, but in no case are the exemptions so constant as to establish a law. In fact the apparent prophylactic influence of this class of diseases seems to rest upon the principle of acclimation—a principle so universally recognized that no argument is necessary for its support.

The human system in some cases adapts itself to surrounding circumstances with great facility, but in others with greater tardiness, and more difficulty ; and, though a thorough acclimation does afford protection, more or less reliable, still it cannot be presumed to afford sufficient immunity to be considered a law. This protective or prophylactic influence may, no doubt, as has been already observed, operate in different degrees in different infectious disorders, and probably varies, also, in its operation upon individuals of various constitutions and idiosyncrasies ; and the very irregular and uncertain protection which appears to follow attacks of typhoid fever, may evidently be attributed to the same principle — the fortifying influence of acclimation.

The period of life at which this disease generally occurs, though in no wise affecting the question in regard to contagion, is, nevertheless, a subject of much interest ; and affords, as I think, much strength to the views heretofore explained in regard to the cause of the disease. It cannot be questioned, as the statistics of the disease amply show, that its most frequent and general occurrence is at a period of life, when exposures to the cause supposed to produce it, are more general and complete. Children, it is said, under ten or fifteen years of age, rarely have typhoid fever, and persons over the age of thirty-five or forty years, are not often known to be attacked. This accords with what we would reasonably suppose, in view of the idio-miasmatic origin of the disease ; for before the first period above mentioned, children are rarely found under those circumstances necessary to the production of the malarial cause. But where they are so exposed, they are not exempt. This accords with my own observation, especially during the past season ; for among the children of our common schools, where some hundreds are congregated in one building, and fifty or sixty in a single room, of various ages, from four to sixteen, I have seen a number of cases, having well defined symptoms of typhoid fever, blended with more or less symptoms of a remittent character ; thus showing that childhood is not exempt from mere considerations of age, where surrounding circumstances favor its production. So, also, it may be said of individuals past the middle age of life, in whom the statistics show a comparative immunity ; the cause is not to be found in a positive exemption

after that period, but in the fact that persons beyond the age of life referred to, are rarely found in our armies, on board ships, or peopling the hospitals of our maritime marts. These exemptions, it will be found by reference to the statistics on this subject, become more general as age advances, and in this they evidently correspond with the usual exemptions of aged persons from exposure to the cause of the disease.

It is said that the influence of sex has to do in the production of typhoid fever. This, however, is variously estimated by different writers ; some representing females, and others males, as more frequently subjects of the disease. We may, however, reasonably infer that this difference is owing mainly to the peculiar circumstances connected with these observations, and that little, if any, difference exists in the liability of the two sexes. Thus, where the disease was observed in private families, in which females were more exposed by nursing and attendance on those diseased, and in certain factories where females were the principal operatives, physicians have reported its occurrence as more frequent among females ; but where the observers were situated in hospitals, and other places in which males bore a more conspicuous part, during the prevalence of the disease, they have furnished us with statistics showing its greater prevalence among males.

In regard to the nature of typhoid fever, but little need be said,—in fact, but little of a very satisfactory character can with truth be said, in relation to it. From the enteric phenomena, so uniformly presented in fatal cases, it has been supposed by some that these local lesions constituted the essential disease. But its early symptoms clearly imply embarrassment of function, elsewhere located, and in no wise connected with these enteric lesions, manifested at a much later period ; and though the local difficulty may be so constant in its connection with the essential and primitive disorder, as to constitute one of its characteristic phenomena, yet the real disease may be looked for elsewhere. Thus, the morbid impression may first be made on the great nervous centers, presiding over all the functions of organic life, and be thence reflected upon the particular parts finally involved by reason of a peculiar affinity existing between the specific cause or poison that

produced it, and those particular glands. Or, more probably, the first morbid influence may be exerted on the blood, through the medium of the lungs, and perhaps other organs, and thus contaminate the whole circulating fluid; and the specific affinity of the poisonous elements, as above suggested, might tend to produce this definite local determination. This latter supposition is strongly corroborated, when we consider that the special function of Peyer's glands appears to be the elimination of effete, putrescent or poisonous matters from the blood. The uniform and peculiar local lesions found in typhoid fever, differing in so many respects from the usual appearances attendant upon the ordinary enteric or gastro-enteric affections, leave no doubt that its cause is equally peculiar and specific, and since we know of no direct way in which the original morbid impression is likely to be made upon the parts found involved, it does not conflict with well established physiological and pathological rules, to suppose the local phenomena may result from a secondary impression. This view accords with what is well ascertained to be the case in many other diseases, and some, too, of an infectious character.

This disease cannot be regarded as inflammatory in its character; for inflammatory action is always attended by an unusual quantity of fibrin in the blood; while in typhoid fever that element is generally below the proportionate amount found in healthy blood. Besides, the disease does not exhibit that high grade of symptoms which characterizes inflammation. If it were a disease of a specifically inflammatory character, as supposed by some, it would never be relieved until the specific influence was exhausted, or, in other words, until the specific inflammation had run its course; which does not accord with experience. In its early stage, before the local phenomena are developed, it is not an unusual occurrence, by a protracted course of free perspiration, to arrest the disease. This I have witnessed in numerous cases, and it has much influence on my mind in determining the nature of the disease.

The *diagnosis* of typhoid fever is a subject of much importance. Although I have already specified the principal diagnostic characteristics, while speaking of the general course and symptoms of the disease; yet I will here recapitulate, for the purpose

of impressing them more deeply on your minds, by presenting them in a distinct group, separated from those symptoms which belong in common to this and other diseases.

The initiatory stage presents some peculiarities, which should receive attention, with a view to diagnosis. While this stage is quite uniformly more slow in its developments, and more protracted than in other forms of fever, its symptoms indicate an involvement of the nervous system from the very first, to an extent peculiar to this disease; and these two circumstances, taken in connection with the appearance of the tongue, which is generally clear from fur, and healthy in appearance, or at least not so much affected as in the commencement of fevers generally, afford good grounds to anticipate the development of typhoid fever.

The peculiar character of the diarrhoea, is a symptom of some consequence in this relation. While diarrhoea often accompanies attacks of other forms of fever, it is seldom so persistent and unyielding as in this disease; nor is there in other disorders that peculiar dirty yellow color and offensive smell, which characterize the evacuations in typhoid fever.

The frequency of the pulse, together with its hard, wiry, yet feeble character, is characteristic of this disease. True, we often have a rapid pulse in congestive fever, but it does not seem to combine the qualities of irritation and debility in the degree generally observed in typhoid; and in other diseases, an acceleration of the pulse is generally attended with an increase of volume and force. In typhoid, the pulse is seldom less than one hundred per minute; but whether more or less frequent, it is found to be small, wiry and feeble.

There is a peculiarity of *countenance* presented by most patients in this disease, which it is more easy to recognize than to describe. It is a kind of indefinite, vague expression; partaking, as it were, in many cases, of sprightliness and obtuseness; for, while the eye will appear to be unusually bright, especially in the early period of the disease, the features generally will present a dusky, unmeaning appearance,—showing that the lustre of the eye is not a reflection from the mind.

Finally, the petechiæ, which I have before so carefully and

minutely described, when they make their appearance will leave you no longer in doubt. But you must learn to distinguish between the rose-colored, lenticular elevations, the color of which recedes on pressure, and which are scattered over the surface, peculiar to typhoid, and the red, irregular, more numerous spots, which maintain their color under pressure, sometimes attendant on low cases of congestive fever.

The *prognosis* of typhoid fever, under proper treatment, I regard as generally favorable. It is true, that the statistical reports of the disease denote that it has, under certain circumstances, proved exceedingly fatal; while at other times, and in other places, it has appeared remarkably mild. These differences, no doubt, result, in part, from variations in the intensity of the cause; but more, I apprehend, is to be attributed to differences in the modes of treatment.

According to my own observation and experience, a harsh, debilitating mode of practice, in typhoid fever, always aggravates the symptoms, and tends to produce fatal results; while under a mild, sustaining, yet soothing course, few diseases of any gravity will so generally terminate in health.

The unfavorable symptoms in a given case, may be thus enumerated: Delirium, or great mental depression; coma; great subsultus tendinum; spasmodic action, or rigidity of the muscles; excessive diarrhoea; involuntary discharges; hemorrhage, especially from the bowels; an extremely frequent pulse, say 130 or more, with great feebleness; coldness of the skin, attended with a clammy sweat; profuse perspiration, with great prostration; and very great abdominal distension. The favorable symptoms are, of course, the opposite of those just mentioned; but I may remark, that, however grave the symptoms may have been, a tendency in a part or all of them to yield under treatment, or the spontaneous resolution of any of them, as evincing the renewal of vital energy, will be regarded as favorable.

The *treatment* of typhoid fever has been, and still is, a subject of much interest and investigation. Many methods of treatment have been employed by different members of the profession, who have, of course, been governed by the theory they have entertained as to the nature of the disease. Experiments have been

made, both in private practice and hospitals, for the purpose of determining, if practicable, which of the many methods proposed would lead to the most favorable results. But all these experiments have seemed to fail in the establishment of a mode of treatment, satisfactory to the mass of the profession. Experiments, made under circumstances highly favorable for arriving at the truth, have, under different practitioners, resulted in unsettling the therapeutics of the disease, by the introduction of new methods of management, which, while they supplanted existing methods, were at diametrical variance with each other. The consequence is, that the student cannot possibly derive from the books such a system of medication for typhoid fever as will be satisfactory to him, or command his confidence. To verify this assertion, I shall now give you a synopsis of some of the various methods which, under endorsement of influential practitioners, are placed in competition for professional favor.

Dr. Jackson, of Boston, after many observations and experiments, both in private practice and in the Massachusetts General Hospital, recommends the following course :

First. Cessation from labor ; abstinence from food, except of the simplest, liquid kind ; and a state of repose.

Second. Free evacuations as soon as possible ; “ it is especially important they should be made as early as the third day.” First, “ an emetic of tartarized antimony,” “ then an active cathartic, or the two combined.” If there is constipation, an active enema at first, to “ facilitate the action of the cathartic.” “ If vomiting and purging are not followed by great relief,” venesection should be practiced on the following day, unless the constitution should be feeble, or the case very mild.

Third. If the disease has not subsided give tartarized antimony every two hours, in increasing doses ; keep the bowels open, and for two or three days “ calomel should enter into the medicine used for this purpose ; not, however, more than one moderate dose in a day.” “ It should be noted, however, that, usually, after the antimony has been given for forty-eight hours, this will act sufficiently on the bowels, and that sometimes it must be restrained by opium.”

And yet a *scientific* practitioner advises its employment, even in typhoid fever.

Fourth. "When the disease subsides early under any active treatment," "the patient should be restrained from solid food for two or three days, at least, after he has appetite for it;" and "then use vegetable food in small quantities, for two or three days more." Should be confined to his room, but not wholly to bed, and not talk on business or any interesting subject, until convalescence is fully established.

Fifth. "Evacuations, vomiting and purging, at least may be resorted to with advantage in the second week;" and "perhaps some benefit may be obtained from antimony, in small doses, when commenced in that week." But "after that period no active treatment should be employed, or none that will cause any serious inconvenience to the patient."

Sixth. The usual admonitions as to diet, and the obvious duty of watching the progress of convalescence, and so guiding the patient and guarding him from the dangers of indigestion.

Seventh. The use of cordials to be regulated by the peculiarities of the case. Seldom do hurt at a late stage of disease, where patient is enfeebled, and no more is used than is grateful to the patient. "When he spontaneously demands them, as late as the third week, they will almost always be found useful. By cordials are meant vinous liquors. Cider has been commonly found grateful, beginning with an ounce, two or three times a day, and increasing according to the effects. Sound beer or ale is more rarely, but sometimes grateful. In patients much exhausted, however, the strong foreign wines, Sherry, Port and Madeira, are found most useful. The articles may be diluted, or may be employed to season articles of diet, or may be given alone, according to the taste of the patient."

"Dr. Jackson's faith in the usefulness of calomel was shaken a few years after the commencement of his practice; when the Massachusetts General Hospital was opened, he still resorted to it occasionally during the first few days of the disease, and particularly when any secondary inflammation supervened; but confidence in the specific power of the medicine grew less and less,

and since 1830, its use in the hospital has been nearly abandoned.”
Bartlett on Typh. &c. page 148 et seq.

The following synopsis of “*Chomel’s Method*,” I condense from
Bartlett on Typhoid, &c., page 158 et seq.

“The treatment of typhoid fever has been, especially for the last fifteen years, a subject of great interest amongst the physicians of the large hospitals of Paris. It was in these institutions, that the symptomology, diagnosis, and pathology of the disease were first thoroughly studied; the opportunities which they offer for a careful trial and comparison of different modes of management are unequaled; and these opportunities have been very faithfully made use of by a considerable number of cautious, accurate and philosophical observers. Amongst them may be mentioned, particularly, and this without any invidious distinction, Chomel and Louis. Chomel has been for many years attached either to La Charité or to the Hotel Dieu; he has grown old in the constant and conscientious study of disease; and, now, in the ripe maturity of age and experience, is unsurpassed in the capital of France as a man of practical sagacity and skill. I shall first give a summary of his practice in this disease.”*

His treatment is, for the most part, what is called rational or symptomatic. Simple and benign cases may be very safely trusted, he says, to refreshing drinks, such as lemonade, currant water, orange water, or pure water taken at short intervals and in such quantities as the patient may desire; emollient fomentations or poultices to the abdomen, when this is painful; sponging the surface of the body, if the skin is hot; cold applications to the head, if painful; and hot poultices and sinapisms in case of drowsiness and disturbed sleep. He is inclined to think that a single moderate bleeding at the commencement of the fever may be of some advantage in modifying present symptoms, preventing ulterior complications, and influencing favorably the march and termination of the disease. If the headache or pains in the abdomen are severe, leeches may be applied below the mastoid processes, for the former, and near the arms for the latter. For constipation, a gentle laxative; for troublesome diarrhoea, rice water, injections of starch and water, &c.

* “*Leçons de Clinique Medicale. Par A. F. Chomel, p. 449, et seq.*”

Strike out the recommendation for bleeding, and this is a truly rational, and I doubt not a successful mode of treating these mild forms of typhoid fever. Bleeding would I apprehend very often rob them of their mildness. Chomel "is inclined" to think favorably of it; I am not only "inclined," but constrained by reason and observation, to think otherwise.

In what he calls the inflammatory form of the disease, Chomel adopts a more decided antiphlogistic course, such as bleedings, leeches, entire abstinence from food, &c. For bilious symptoms, as a yellow fur on the tongue, a bitter taste, nausea, vomiting bile, and constipation, he relies on the same treatment as for the simple form. Seldom gives even an emetic, finding it unnecessary; though where the attack is sudden and the stomach oppressed by its contents, an early emetic would, he thinks, be useful.

In the adynamic form he adopts a decided tonic and stimulant treatment, adapted to the degree of prostration and debility. Where the failure of muscular strength is extreme he gives tonics, aromatics and cordials, as cinchona, wine, camphor, ether, &c. He prefers cinchona in the form of an extract, administered in an aromatic potion to the amount of one or two ounces in twenty-four hours. He also employs it in decoction as a drink and at the same time gives either the decoction or extract in the form of enema.

While the adynamic phenomena are moderate, and before the free use of cinchona is deemed necessary, he uses light wines, as Bordeaux and Burgundy; when these phenomena are more strongly marked, he resorts to the stronger wines, such as Madeira, Sherry and Port. Ether is to be used when there is an urgent necessity for rapid and immediate stimulation, and with this he combines the extract of cinchona. Camphor he rarely uses except as an ingredient in tonic injections. He speaks more decidedly of the evils attending the application of blisters, than of any benefits to be derived from them.

For hemorrhage he recommends the usual means. A cold astringent solution for epistaxis, or if necessary plugging the nostril. For hemorrhage from the bowels, iced water for drink, in injections, and applied upon the abdomen; lemonade, and extract of rhatany. Local inflammations he meets by local and general

bleeding, adapted to the circumstances of the case. "If the patient is in a condition not likely to tolerate these measures, dry cupping and sinapisms in the neighborhood of the inflammation, which is most commonly a pneumonia, may be substituted.

Gentlemen, I have never seen, nor do I expect ever to see a case of genuine typhoid fever, in a condition to "tolerate" general bleeding to the extent of controlling pneumonia, or any other local inflammation. The idea appears to me to be utterly preposterous. But mark what follows:

"When these complications take place, during the adynamic period, or in the adynamic form of the disease, they do not contraindicate stimulants and tonics. The local inflammation, under these circumstances, will be more surely relieved, or enabled to relieve itself, by a removal of the extreme general debility, through the agency of a tonic medication, than by the abstraction of blood."

How ingeniously men of *science* can frame language into sentences, which may serve as light craft to enable them to navigate the shallow waters of inconsistency, into which they are often carried by the current of false theories. I suppose the learned author almost imagined he heard some inquisitive student inquire, Would you seek to check epistaxis or hemorrhage from the bowels, if a patient had local inflammation? or, suppose that while you were giving cinchona and stimulants, to keep a patient from sinking, you should discover symptoms of pneumonia, would you suspend them, and open a vein?

And, gentlemen, if this be sound old school authority; if tonics and even stimulants are not contraindicated, in certain conditions of typhoid, by pneumonia, and other inflammatory complications; let me once more inquire; what becomes of the long and strenuous contentions, maintained by the advocates of the doctrine, that sulphate of quinia is incompatible with inflammation, or even fever, in intermittent and remittent fevers? Surely, the same rule should apply in all these cases.

In 1831, Chomel commenced the trial of chloride of soda, in typhoid fever, in connection with the system of management of which an outline has just been given. He administered it in a sweetened solution of gum arabic, containing from one grain to

one grain and a half to the ounce. Of this solution, his patients generally took from fifty to ninety ounces in the twenty-four hours. Injections of the same solution were given morning and night; the body of the patient was freely washed, several times a day, with a solution of the chloride in water; poultices moistened with it, were applied to the abdomen; the bed clothing was sprinkled with it, and vessels containing it were placed under the bed.

After employing this additional treatment from 1831 to 1834, he says: "Finally, although the results of this treatment have been very different in different years, it has still been attended with more success than any other. Several distinguished practitioners have informed us that they have arrived at the same conclusion. We shall continue, then, our trials with a mode of treatment, which, combined with the rational method, has thus far given us, notwithstanding its failures, more satisfactory results than any other." "Subsequent to this, however, in 1835," remarks Professor Bartlett, "with a frankness, a conscientiousness, a single-minded regard for the truth, which it is beautiful to witness, he says: 'The hopes, which our first trials with the chloride had permitted us to conceive, have not been realized. The results which have thus far been obtained, are not sufficiently encouraging to justify us in the expectation of continuing our trials with much chance of success.'"

This confession of the failure of chloride of soda, which at first gave such hopes of success, when we remember that it was only employed in addition to Chomel's ordinary course, certainly does not indicate that the results of his method without the chloride, could have been very satisfactory. And should not the same honest regard for truth, which led him to record its failure, have called forth an expression of distrust in regard to some of those more heroic measures which he employed, and evidently with as little advantage? Why did not he, and why do not the profession generally, honestly confess that the lancet, antimony, and mercury have failed, as they evidently have, to justify the reliance which has been placed in them? Prof. Bartlett well remarks that such frankness "is beautiful to witness;" and its rare occurrence contributes much to increase its beauty. How easily

might the temple of medical science be festooned with such ornaments, should her votaries generally follow the example set by the venerable Chomel in this instance.

Louis' method of treatment in typhoid fever, may be very briefly stated. He commences with blood-letting, proportioned in extent and repetition to the strength and vigor of the patient, and the severity of the disease. This, he thinks, should be done within the first ten or twelve days. Thinks it generally shortens the duration of the disease a few days; diminishes its gravity, and lessens its mortality. Has not, however, found its immediate effects very obvious. It appears, sometimes, to meliorate urgent symptoms; at other times, to aggravate them.

This measure may be aided by suitable mucilaginous drinks, emollient enemata, and cool, fresh air. If diarrhoea be persistent, a small injection, containing a few drops of laudanum, should be used.

Tonics are considered very useful and necessary, when the general febrile excitement has subsided; where there is extreme prostration; when the pulse is only moderately accelerated, or not at all; and when there is slight diarrhoea, and little or no tympanites. Prefers sulphate of quinine to any thing else, in doses of eight to twenty grains, given in mucilage. Gives cinchona, in infusion, for drink; and in diarrhoea, administers tonic and astringent injections.

He condemns and rejects blisters in this disease. He thinks opium of use in allaying nervous symptoms, when the febrile excitement is not high. He has seen little or no benefit from leeches, or the application of ice to the head, in violent delirium; but, if the face is flushed, advises another moderate bleeding, even as late as the fifteenth day; although the patient may, already, have been twice bled.

The following are his concluding words on this subject, as quoted by Bartlett, from whose work the summary just read is an abridgment.

"It results from all that precedes, upon the effects of the principal therapeutic agents at present employed in the treatment of typhoid fever, that these agents possess a favorable, though limited influence, upon the march and termination of the disease; and

that an impartial examination of facts points out, with a good degree of precision, the best method of employing the three principal means which experience has placed in our hands, to wit: bloodletting, evacuants and tonics. Furthermore, the limited degree of success which has thus far been obtained, ought not to discourage the friends of science, nor prevent them from hoping, that a more appropriate and successful treatment of this disease will yet be discovered. Who would have foreseen the effects of opium, of cinchona, or the preservative power of the vaccine virus? What accident and observation have hitherto done, they are still able to do; without doubt they will do; and therapeutics, like the other parts of science, ought to hope and to expect every thing from observation."

Here, you perceive, we have a confession, also, of the failure to a considerable extent, of the mode of treatment pursued; but it is not coupled with a conviction that the active, I might say heroic, measures employed, are of doubtful propriety. No! bloodletting, evacuants and tonics, have been placed in our hands by experience; and though experience has not demonstrated their efficiency, especially as regards the depletive measures; nay, though suspicions are raised that they sometimes, at least, aggravate urgent symptoms,—still, until accident or observation shall give us some better mode, we must continue to use these active measures. Why not trust to the efforts of nature, where it is doubtful whether your measures will assist, and where it is probable they will embarrass those efforts? If you must give something in these cases, let it rather be an agent which will have no effect at all, than one of positive power, which may be exerted against the health of your patient.

When we turn to the statistics of the disease, under the methods of management just described, and others of a similar character which might be noticed, we certainly find but little encouragement to follow any of these plans of treatment. The bills of mortality, wherever the disease has prevailed in a severe form, present melancholy evidence of the failure, indeed, I should say, the injurious consequences, of such medical interference. Making all proper allowance for the difference in favor of private over hospital practice generally, I solemnly aver, that I have never

witnessed the prevalence of typhoid fever in a form that would justify one-fourth the average fatality recorded in the books ; and I have been an attentive observer of the disease in New England and in Ohio, for about twenty-five years. Just listen to the authorities. During fourteen years, from 1822 to 1835 inclusive, the average ratio of deaths to the cases treated, in the Massachusetts General Hospital, was as one to seven, or more than fourteen per cent. During one year of this time, the mortality was one in three and a half cases, or more than twenty-eight and a half per cent. The reports of Louis show a mortality of over thirty-seven per cent., and in Chomel's wards, in the Hotel Dieu, about one-seventh of the cases, or over fourteen per cent., terminated fatally.

I trust, gentlemen, your practice will never exhibit results like these.

LECTURE XVI.

TYPHOID FEVER—CONTINUED.

Discussion of Treatment continued—Dr. N. Smith's Method—Review of the Authors cited—Proper Treatment—Remedies Recommended—Cases cited—Typhoid may be cut short—Further Measures for Protracted Cases—Management of Convalescence.

In my last lecture I gave you summaries of three modes of treatment, in illustration of the great diversity of methods adopted by the profession, and of the unsettled state of the medical mind in regard to the therapeutics of typhoid fever. Two of the methods referred to—those of Jackson and Louis—are, you have observed, decidedly active and depletory, while that of Chomel is more moderate and expectant, mixed, however, with a little heroism, and experiments with suggested means.

I will give a synopsis of Dr. Smith's mode of treatment before I present my own, merely introducing it with the remark that, though I differ from him as to our ability to cut short the disease, in its early stage, in many cases, I regard his method as much more philosophical than that of any other author whose treatment I have read, and that, with a few modifications, my own experience justifies me in speaking of it in a highly favorable manner. I therefore call your special attention to the method of Dr. Nathan Smith, as found in Professor Bartlett's work on Typhoid, &c., pages 154 et seq.

He first remarks, that he had never seen a single case in which he was satisfied he had been able to cut short and arrest its progress; and that, where the disease is going on regularly in its course, without any symptom denoting danger, and without any

local distress, active interference will be likely to do more harm than good. Under such circumstances, he thinks, no medicine should be given. He is convinced that all powerful remedies or measures, in the early stage, do harm, and that patients treated with them in the beginning, do not hold out so well in the latter stages of the disease. He has seen many cases in which persons in the early stages of this disease were moping about, not very sick, but far from well, and who, upon taking a dose of tartrate of antimony, have been immediately confined to their beds. He thinks that in simple, mild forms of the disorder, "we had better leave the disease to cure itself, as remedies, especially powerful ones, are likely to do more harm than good." He advises simple diluent drinks, a very little farinaceous food, and the avoidance of all causes of irritation.

He opposed the plan of general bloodletting at the commencement of the disease; would bleed only when there was "uncommon pain in the head, accompanied with great heat in that part, a sense of fullness, and a throbbing of the temporal arteries, or marks of congestion in the viscera of the thorax." Here he thinks that the loss of twelve to sixteen ounces of blood will often mitigate the severity of the disease. The immediate effects of bleeding have not, however, appeared to him very obvious, and he says that where the pulse is very frequent, the operation is seldom or never attended with any advantage.

Emetics are recommended by Dr. Smith, only where there are nausea and oppression, either at the commencement, or during the progress of the disease. His favorite articles are ipecacuanha, eupatorium, or sulphate of zinc, given either singly or combined. Tartrate of antimony he looks upon as an inappropriate and unsafe remedy. The bowels should be kept open by gentle laxatives, but active and indiscriminate purging he considers hurtful. Blisters, he thinks, may as well be generally dispensed with; they may relieve local pain, but are sometimes injurious. Stimulating remedies internally, with external heat, to excite active perspiration, are attended, he thinks, with bad consequences, at all periods of the disease. Opium, he says, may be used with advantage, for the purpose of procuring rest and quietness during the night, when it is not contraindicated by high febrile excite-

ment and pain in the head, and, in combination with ipecacuanha and camphor, to restrain immoderate diarrhœa. He has seen, in many instances, very serious evils from the specific action of mercury, but no benefit. Cinchona he has found to produce a good effect in some cases, where the surface was cold, and also where there was hemorrhage. The mineral and vegetable acids, the alkalies—refrigerants, as they are called—such as sulphate of magnesia, super-tartrate, and nitrate of potash, he regards as unimportant or questionable remedies.

The most effectual refrigerant and febrifuge, in the hands of Dr. Smith, consisted in the free use of cold water externally. He very strongly commends this measure. He directs the patient to be uncovered, and then sprinkled or dashed repeatedly, with pure cold water. He allows cold water as a drink, as freely as the patient may desire, during the whole course of the disease. As to the general care of a patient in typhoid, or, as he calls it, typhous fever, he says: "He should be kept in a spacious room, the larger the better. His bed should be of straw or husks, especially if it is the warm season; and it should not be placed in the corner, but brought out into the room. We should contrive to have a current of air pass over the bed, by means of doors and windows. * * * In the warm season of the year, the windows should be kept open night and day. All the furniture should be removed, except such articles as are required for the patient's use. The windows should be darkened, or something opposed to the light in such a way as to still admit the air. The room should be kept as quiet as possible, since noise is injurious, and no more persons should be admitted than are necessary to take care of the patient, which will, if he is very sick, require the labor of more than one.

"The room should not be carpeted, and the floor should be often washed with pure water, or soap and water, and in the hot season, it, as well as the walls, may be kept wet with water during the heat of the day.

"Cleanliness is absolutely essential to the patient's comfort, and no dirty dishes, or useless medicines or food, should be suffered to remain in the room. All excrementitious matter should be removed immediately. In the warm season of the year, the

bed and body linen should be changed every day, and in the cold, every other day, at farthest.

“The patient’s body and limbs should be cleansed every day with a piece of sponge and warm water, or soap and water. If a male, he should be shaved every day, or every alternate day; and if a female, with long, thick hair, it should be cut off, or thinned, so as to leave but little of it the full length.”*

Having now put you in possession of the views of treatment of four eminent practitioners, of about equal respectability and authority in the profession, I might raise the question, which should we follow? And I frankly confess that, in the absence of experience to aid me in the solution of the question, I should not be able to make a satisfactory selection. I should doubtless hesitate to adopt the apparently inefficient placebo method of Dr. Smith, unless, like him, I believed it impracticable to arrest the disease, even in its early stage; I should fear to employ the lancet, and tartar emetic, and purgatives, with Jackson, Chomel, and Louis, for they do not agree with each other in regard to some of these; they evidently are not satisfied with their own practice, and the published statistics demonstrate its failure, if not its injurious effects. And thus, in the present state of medical knowledge in regard to this and other diseases, the inexperienced practitioner is compelled to choose between variant plans of treatment, and probably sacrifice valuable human life in experiments to determine what mode of management is best adapted to cure.

Having myself experienced the embarrassment resulting from this confusion and clashing of theories, I feel anxious to define a mode of treatment which, after years of observation and experience, I have adopted; which, by the institution of efficient means, shall cut short such attacks as are susceptible of being arrested; and which, at the same time, by the avoidance of all harsh, irritating, and debilitating measures, will leave the patient all his constitutional vigor with which to bear up under the disease, if it must run its course. If I shall succeed in so presenting such a course of management as to gain your confidence, and induce you to give it a fair and impartial trial in future practice,

* Smith’s Medical and Surgical Memoirs, pp. 95, 96.

I shall feel that I have not only rendered you a service, but have subserved the cause of humanity.

In the treatment of typhoid fever we should aim to eliminate from the system the malarial poison, by such means as shall not diminish the vital forces, nor hasten the development of the specific intestinal disorder; and we should relieve the case from the depressing influence of periodic or marsh malarial fever, which, in this western country, very often complicates the attack at its very commencement. Having treated the case with reference to these two indications, should it not then be arrested, a third general indication will remain to be fulfilled, and that is, to foster the strength and vigor of the patient, and thus enable his system to endure the force of the disease, or possibly throw it off.

I need not speak of the two indications first named separately, because, fortunately, they do not contra-indicate each other, but the remedies adapted to fulfill one, are at least corroborative of the treatment called for by the other. Where there is reason to suspect the influence of marsh malaria, even though the periodic tendency were so obscure as to be scarcely recognized, I should at once exhibit the antiperiodic agents. I would give the quinine and iron, mixed in equal quantities, in doses of three grains each, every two hours, until cinchonism was produced, unless the fever should evidently rise; in that case, I might suspend the antiperiodics until evidence of a remission, more or less perfect, in the fever, had made its appearance, employing, in the meantime, such palliative measures,—as the alkaline and whisky sponge bath, gently fanning the head, if it were hot, and diluent teas,—as would tend to lessen febrile excitement. But generally you will find the fever mitigated by the direct influence of the quinine and iron. Their administration will generally produce a gentle diaphoresis, and a remission, if not an intermission, will follow, which in some instances will be an end of the disease, the patient being entirely relieved from the morbid influence. This is the very result at which I should aim at this stage of the case, and, to make its attainment the more probable, I would advise the use of mild, unirritating diaphoretic and diuretic medicines, to be used in alternation with the quinine and iron. For this purpose, make a solution of acetate of potassa, ten grains to an ounce of water,

and give one teaspoonful every two hours, alternating, as before remarked, with the quinine and iron. This may be continued, even though it should appear proper to suspend the antiperiodics. As adjuvant to these remedies, let the patient drink freely, as he may be willing, of an infusion of mullein, which is an unirritating yet efficient diuretic; or, if the stomach shows signs of irritation, indicated by a red tongue, the marsh mallows (*Althaea officinalis*) may be substituted. By such a course of treatment you will seldom fail of making a manifest impression, even if you do not completely arrest the fever the first day. If, however, the antiperiodics are suspended because of the rise of the fever, or should fever rise the second day, in all such cases, calm down the fever by the soothing diaphoretic and diuretic agents, and by bathing and fanning the surface, and again administer your quinine and iron as the fever subsides.

The second day's treatment will, almost without fail, arrest the periodic complication, and, if the typhoid disease do not disappear under the reactive energy of the system, it will not be in the least degree aggravated by the measures I have recommended; but very often both morbid influences will be eliminated or dismissed together, and the patient recover, after only two or three days' confinement.

Upon this subject, Gentlemen, I am not talking at random;—and although I cannot claim to “speak by the book,” I can do what is better, I can speak from experience. I have seen scores of cases resolved at once by the simple measures I have mentioned, which I am confident would have developed the grave symptoms of typhoid fever, and in some instances would probably have proved fatal, under another plan of treatment. I will mention a case in point. Not long ago I was called to a family, three of whom were down with unmistakable signs of typhoid fever. One of them was exceedingly sick, and died in a few days. The other two lingered a week or two longer, and recovered. They were all under the management of another physician previous to my being called. The two cases which recovered were too far advanced to be relieved at once, yet the antiperiodics exerted a beneficial influence on the symptoms of both, and probably shortened the duration of the disease. Two other members of the

family were taken with the same symptoms as the first three, and were tending evidently to follow the same course. These were both relieved at once by the treatment just before described, without an emetic or cathartic or the loss of a drop of blood.

Where I had no reason to suspect the presence of marsh malarial influence, I should not deem it necessary to employ the quinine and iron, though even then they would do no harm. I might give them with a view to their febrifuge effect, but not to the same extent as when I desired their antiperiodic influence. But whether the quinine and iron were or were not deemed advisable, in a case of uncomplicated typhoid fever, I should still resort to the other measures named. I should bathe the surface as in other fevers, to allay the febrile excitement, and I should, by the use of the acetate of potassa, the infusion of mullein, our sudorific tincture, and other unirritating measures, endeavor to produce free perspiration and diuresis, which when induced, I would maintain ten or twelve hours, with a view of eliminating from the system, by means of the renal secretion and cutaneous exhalation, the poisonous element which was overwhelming the nervous forces, and vitiating the vital functions. And here, too, I should expect to succeed, as I have succeeded, in a large number of cases, in cutting short the disease, and restoring the patient to complete health in a very few days.

I say, I should thus expect to cut short the disease in the commencement of its march, and I hold that such an expectation is not unreasonable, even if it had not been justified by experience. Why not arrest the morbid power of animal as well as that of vegetable malaria before structural lesion has been produced? Why not enable one individual to throw off a depressing influence which hundreds of others equally exposed are able to withstand without assistance? But I would not expect to throw it off by bleeding or purging, or even vomiting my patient. Bleeding will exhaust the system of the healthy as well as the unhealthy constituents of the blood, and is a measure directly calculated to depress, irritate, and prostrate the patient. Active purgation must unquestionably tend to produce intestinal irritation, and hasten the development of those enteric symptoms, which charac-

terize the disease when fully established ; and thus add to the gravity of the most serious feature of the disorder.

If there were evident accumulations in the bowels, I should remove them by a mild enema, or if this did not succeed, I should administer an aperient, such as olive oil, or, if there were a manifest acid condition of the alimentary canal, our neutralizing mixture* might be given, to the extent of gently moving the bowels. But beyond this I would not go in the use of purgatives ; I would rather let the bowels alone, and even risk the evil effects of accumulations, than produce active catharsis.

If there were nausea or vomiting caused by the presence of irritating substances in the stomach, their ejection should be favored with a gentle emetic ; but no tartarized antimony, nor even ipecacuanha or other impalpable powder should be given, which, by adhering to the mucous membrane, may produce and keep up very serious irritation. If emesis is to be produced, let it be effected by means of the infusion of *Lobelia inflata* and *Eupatorium perfoliatum*. This will accomplish the object with more promptitude, and less permanent prostration or irritation than any other. I have tried it too often to be mistaken ; having never been disappointed by it, nor seen the least unpleasant result grow out of its use.

If by the measures I have described, the disease be not arrested, you have a case on your hands which demands your most careful and prudent attention ; and though you should not despair even yet of seeing the system rise superior to, and throw off the malady, still you should be prepared to see the fever pursue its wonted march, and develop the train of phenomena in greater or less severity, which ordinarily attend upon it. And again I warn you against an active, harsh interference, with a view to arrest the disease ; for you will, by adopting such a course, aggravate the severity of the case, and diminish the chances of recovery. You had far better abandon your patient to the resources and energies of his own constitution, than attempt to bleed, vomit, purge, or mercurialize the disease from his system. On the contrary, let all your efforts be directed to calm nervous irritation, allay febrile

* Best Turkey Rhubarb, Sup. Carb. Potass. Peppermint leaves and Pulv. Cinamon, of each two drachms, to half pint hot water. Dose—tablespoonful every hour.

excitement, counteract and arrest local inflammation or congestion, and husband and sustain the vigor of the system.

One of the most important measures, now within your control, is the bath. This may be pure, cold water, or broke water, applied with a sponge to the whole surface, or broke water and whiskey, applied warm in the same way, and allowed to evaporate, where there is much heat; otherwise it should be followed by friction with a dry towel. The warm sponge bath followed, as it always is, by a more rapid evaporation than the cold bath, is a genial, yet efficient mode of reducing febrile heat, and when the heat in the head is great, the evaporation may be greatly favored by a gentle motion of the air produced with a fan. The bathing should be repeated every one or two hours, and in the manner most agreeable to the patient. The importance of this constant attention to the surface is self-evident to any one who duly appreciates the sympathy which exists between the cutaneous and mucous surfaces, and the influence which may, by this means, be exerted upon the capillary circulation and the nervous system. By this measure both sensible and insensible cutaneous transpiration is promoted, and the elimination of poisonous effete matters of the system is greatly favored. It equalizes the circulation, and tends to maintain its equilibrium, and it calms nervous excitement, allays irritation and mitigates very much the suffering of the sick. I have often seen my patients restless, wakeful, and irritated by the distressing heat and nervous disorder, calmed down to a condition of comfort and repose, by the application of this invaluable measure. Let it never be forgotten or neglected throughout the entire course of typhoid fever.

Instead of the blister recommended by some authors, and which I formerly employed over localities where inflammation is present, as the thorax or abdomen, I now apply the scarificator and cups, and follow these with a hot fomentation, of hops put into a bag, and wrung out of hot water; or the hops may be mixed with bread and milk, forming a poultice, and laid upon the surface after the cups are removed. A fresh poultice should be applied every ten or twelve hours. Or when there is great heat and tension of the abdomen, a folded linen of four or five thicknesses, wrung out of cold water, may be placed over the entire abdomen, and changed

once in two or three hours, so as to keep up a constant moisture and evaporation. I have derived the most decided advantage from this expedient, in a great many instances. It may be continued, by repeating as directed, for a number of days, and will rarely fail in manifesting its salutary influence, not only in relieving the abdominal tension and heat, but also in its quieting and sedative effect on the febrile symptoms and general nervous disturbances.

If the bowels are irritated, soothing injections, such as a solution of starch with a little laudanum, will be of much service, and may be administered without apprehension of aggravating any symptoms of the case. It is a point of considerable importance to restrain the tendency to constant discharges from the bowels. Though it is generally desirable to have the bowels sufficiently open to prevent the accumulation of morbid secretions, yet I have often allowed patients to go a number of days without a passage from the bowels, when great irritability had previously existed. It is better to have the bowels entirely quiet under such circumstances, as the inflammation will be more likely to subside.

In those cases of inactivity of the bowels which sometimes occur, connected, generally, with torpor of the liver, it will probably be necessary to resort to some gentle means to correct the difficulty. For this purpose the compound taraxacum pill, heretofore often recommended, may be given, with a view of producing a very mild aperient action; though when there is mere torpidity of the bowels, an injection of cold water, or, if that is insufficient, one of oil, molasses, and water, will very generally produce a sufficient alvine movement. The patient, or his friends, might not be satisfied by these gentle means, but I should not proceed farther in the use of cathartics, even though urged to do so by the patient himself.

In cases of a low grade of fever, with a tendency to coldness of the extremities, carbonate of ammonia, ten grains to an ounce of water, given in drachm doses, every second hour, will have the effect of increasing the capillary circulation; it will also serve to correct acidity of the stomach, and it will at least satisfy the desire of the patient and his friends to be doing something for his relief. When given, however, as a mere placebo, it may be given

in solution just strong enough to satisfy the patient that it is not water.

It will often be found that cold water does not have the effect of relieving the thirst, so urgent in many cases, in which case warm diluent drinks may be substituted. I find such drinks much more satisfying, in some cases, than cold water. Balm tea is one of my favorite remedies, being simple in its nature, with a very slight, yet pleasant, aromatic taste, and admirably efficient in allaying thirst. I have not found much benefit from the use of those effervescing draughts so much recommended in the books, but, on the contrary, they seem to aggravate the irritation of the mucous membrane; consequently I would not recommend their use. A far more suitable and equally effective means for relieving the dryness of the mouth, and diminishing the sensation of heat both in the mouth and stomach, will be found in a cold infusion of the root of marsh mallows, or *Althæa officinalis*. It should be prepared fresh every day, and used in such quantities as may be desired by the patient. This will act also as a diuretic, which will be an additional reason for its use, where it is desirable to increase the renal secretion.

After the principal symptoms of typhoid fever have been developed, including the characteristic eruption, great irritation of the bowels will constitute a troublesome and important symptom, not to be neglected. Where the diarrhœa exhibits the mucous or hemorrhagic appearances, I am in the habit of giving nitrate argenti, one-eighth to one-twelfth of a grain, mixed with finely pulverized gum Arabic, made into a pill, repeated every three hours, but not to be continued longer than twenty-four hours. The effect of this prescription will be, to favor the action of the liver, by allaying irritation of the bowels; to excite healthy action in the diseased intestinal glands, and thus change the character of the discharges to a mushy and bilious appearance, which will be followed by a fine capillary circulation, and a return of warmth in the extremities. When the diarrhœa is not attended with hemorrhage or mucous discharges, I have found a remedy of great value, perhaps as much so as any other, in the spirits of turpentine, given in doses of five, six, or eight drops, repeated every two hours. It will not, however, be likely to act favorably

in those cases where the tongue is red and smooth; and in any case, if a beneficial effect is not manifest in twenty-four hours, it should be discontinued, and ammonia, in weak solution, given in its place.

You will meet with some cases of extreme irritability of the nervous system, which it will be necessary to quiet. The administration of a few doses of valerian, or of lupulin or hop tea, will usually have the desired effect. Where these remedies fail, and there is danger that your patient will rapidly sink for want of sleep, our diaphoretic powder, given in an eight or ten grain dose, and repeated in two hours, will rarely fail of producing a highly favorable impression, even if the entire effect desired be not produced by it. But I recommend these medicines with much hesitation, lest I may be misapprehended; for I hold that opiates are, in most cases, objectionable, and should only be administered when other means fail. In this light, I felt it my duty to call your attention to them.

In some very severe cases, characterized by great restlessness and subsultus tendinum, especially if the heat of the skin had mainly disappeared, I have obtained favorable effects from the administration of ale. I prefer Scotch ale, diluted with water, sweetened with loaf sugar, and given in wine glassfull doses every hour or two, according to the urgency of the symptoms and the influence of the remedy. I look upon this as the best stimulant and tonic, in these low grades of fever, which we possess; and I confidently recommend its use, not as a curative agent, but as an aid to nature in sustaining and restoring the energy of the system. In some cases of extreme danger, where the patient seemed to be rapidly sinking, in spite of the means already mentioned, I have administered large doses of brandy toddy, and sometimes, apparently, with admirable success. Whether the brandy did really deserve credit for the reaction, or whether the case would have taken a favorable turn without it, as is sometimes seen, I cannot say; but where a patient was sinking under the use of our ordinary measures, the surface cold, pulse rapid and small, with an apparent giving way of the powers of life, I should not hesitate to recommend large doses of brandy toddy to be given, as warm as the patient could take it. In a few instances I have

administered the brandy in incredibly large quantities, without producing any symptoms of intoxication, but acting, in a remarkable degree, as a sedative to arterial excitement.

Convalescence must be managed with much prudence. It may be expected to advance slowly, especially at first, until food begins to be appropriated, and little can be done or should be attempted, to hasten its progress. But little tonic treatment will be borne, at first, and but very few agents of this class seem at all adapted to the peculiar condition in which the system is left. The *Staphylea trifolia*, however, seems, when given in infusion, to produce a very mild and genial tonic impression, without irritating, but rather soothing the irritated mucous membrane. It promotes appetite, enables the stomach to endure suitable nourishment, and favors the early reëstablishment of the digestive process; and it will be tolerated when every other tonic, with which I am acquainted, is rejected. The diet must, of course, be very simple and nutritious. It must be regulated, in both quantity and quality, with judgment, having reference to the effects experienced and the demands of the appetite. Generally, the spontaneous suggestions of the patient's own mind will be safely followed in regard to the kind of food; but it should be taken in small quantities, at first, and increased gradually, as strength is regained.

It sometimes happens that, upon the decline of the more grave symptoms, well marked periodical fever will intervene. This may, in fact, occur at any time during the course of the disease, or during the progress of convalescence. Whenever I observe it, I do not hesitate, in any case, and under all circumstances, to exhibit the proper remedies for its arrest; and I repeat, in this relation, what I have so often said before, that the antiperiodic treatment should by no means be withheld, through fear of aggravating the disease, or any complication associated with it. This is a matter of no small experience.

LECTURE XVII.

INFLAMMATION.

Definition—Symptoms—Changes produced—Functional, Structural—Causes—Nature—Results or Terminations—Resolution—Effusion—Induration and Adhesion—Hemorrhage—Suppuration—Quotation from Dr. Wood on pus—Softening—Ulceration—Gangrene—Granulation—Cicatrization—Summary.

In pursuing the plan adopted in the commencement of these lectures, of grouping together diseases in accordance with their analogies, and then considering those first, which are supposed to have the greatest importance in a practical point of view, I shall next take up the subject of inflammation.

The term *inflammation* comes from the Latin word *inflammo*, to burn; and this was used by the ancients as expressive of the supposed character of this form of diseased action. The literal meaning of the word is, perhaps, calculated to mislead the learner, to some extent; since there are modifications of inflammatory action, which present nothing that will harmonize with the radical signification of the term. It had its origin unquestionably in the appearance of the disease in its most common, and obvious forms; but since we see so many modifications of it so destitute of any symptoms to sustain the idea on which the term, in its original sense, might be predicated, its employment may be regarded as objectionable. Since, however, terms are often conventionally used without reference to the primitive import, and since in the present case the word is generally employed and understood in an accommodated sense, it is probably better to retain it.

I shall not, in the consideration of inflammation, discuss

to their full extent, all the points connected with it. This is a subject bearing upon two departments of the profession, surgery and the practice of medicine; and since many of the diseases, with which inflammatory action is connected, belong to the class of surgical diseases, and exhibit fully all the results of inflammation, I shall refer you to that department for much that might otherwise be deemed proper to be said in this place.

The usual phenomena of inflammation are "increased redness, increased heat, pain, and swelling." I say these are the usual characteristics of this species of diseased action; but as there are exceptions, in which one or more of these symptoms are not manifested, you see the importance of investigating the subject so far as to recognize and appreciate inflammatory action, where the ordinary verbal definition is not fulfilled by its phenomena. If, for instance, you suppose that inflammation must necessarily be accompanied by all the symptoms just named, and you meet with a case in which one or more of these symptoms cannot be discovered, you will not recognize the existence of inflammatory action. But with a clear understanding of the nature of this morbid action, and aware that although, as a general rule, the four peculiar symptoms attend upon it, yet it is liable to many exceptions, you will be able to discriminate between the different aspects in which it will be occasionally presented.

Sometimes the symptoms of inflammation are very obscure, and require close attention in order to their recognition. Thus in some low forms of inflammatory action pain appears to be entirely absent—the patient being unconscious of its presence, but upon a careful examination by pressure over the part affected, a degree of tenderness at least, will usually be perceived. These variations in the manifestations of inflammatory action depend, to a considerable extent, on the kind of structure involved.

Redness is usually the earliest symptom of inflammation, and is more uniformly observable than perhaps any other. It will be seen in every shade, from a deep crimson to a slight flush, the intensity depending upon the degree of inflammation, its stage, the part involved, the condition of the system, and perhaps the nature of the cause. It is, however, sometimes wanting, as in white swelling, where, although there is heat, pain and swelling, there

is no redness of the surface. There is evidently engorgement of the part, as shown by the tumefaction, but it is probably of a serous character principally, though it is possible that the vessels of the deep structures immediately involved, might, upon inspection, be found to be injected with red blood. The surface in this affection is in fact paler than natural, hence the name "white swelling."

The *increase of temperature* is likewise variable in its intensity, though it is said never to exceed the temperature of the blood in the heart. The heat in an inflamed structure, is probably owing partly to the presence of more blood in the capillaries of the part, and partly to an increase of vital action. But inflammatory action may exist without any appreciable increase of heat; and we often meet with cases where, although the inflammation is evidently of a high grade, yet the manifestation of heat is very slight, far less than the palpable condition of the case might lead you to expect.

Pain is a symptom of inflammation which is perhaps more variable in its manifestation than any other. It usually is an early symptom, sometimes the very first, and it occurs with every degree of intensity. It varies also in character, being sometimes sharp and lancinating, at other times dull and obscure; it may be throbbing, or it may have a pungent, or a burning character. Sometimes the pain is intermittent or remittent. Occasionally there is a mere soreness, perhaps unnoticed by the patient except when moved, or when pressure is made upon the part. Oftentimes the sensation of pain far exceeds what the amount of lesion would appear likely to produce, and it perhaps as often falls below what would be expected. The degree of pain depends much upon the structure involved, as well as the stage and degree of the inflammatory action; and it is a remarkable fact that tissues which possess little or no sensibility in health, often become intensely sensitive and painful when inflamed; as the bones, tendons, ligaments and serous membranes. Another fact is worthy of remembrance, and that is, that the pain is often felt in a part distant from the seat of inflammation; as in the glans penis from inflammation of the bladder, and in the knee from inflammation of the hip.

The *swelling* generally attendant on inflammatory action also presents great diversity in its extent,—sometimes amounting to a mere thickening of a mucous membrane, at other times, presenting the most enormous distension, as in inflammation of some of the glands. In some of the structures, swelling cannot be regarded as an attendant of inflammatory action, as in the serous membranes, and scarcely in the alimentary canal. It is in those soft structures which abound in areolar tissue that this symptom is more fully developed. It is caused by an engorgement of the vessels belonging to the part, by effusion into the structures, and finally by the production of additional capillaries and the growth of new structures.

I have thus given you a brief description of these four symptoms of inflammation, and you perceive that constancy in their development is by no means to be looked for: on the contrary, they may exist all together, in similar, or extremely disproportionate intensity; or any of them may be absent, or at least not observable, in cases where those present indicate a high degree of inflammatory action. These are facts which it is important for you to remember, as without a knowledge of them you will be constantly liable to be misled in practice.

If the inflammation continue for a considerable length of time, additional phenomena will be produced. These will consist in functional changes of the part or organ involved, and finally of structural alterations. The functional changes may be briefly stated to consist of—First, during the initial or forming stage, an increased natural secretion of the part; secondly, on the establishment of active inflammation, a diminution or total cessation of the secretory function, as indicated by the dryness of the skin, if that organ is involved, or the dry, hacking cough, when the mucous membrane of the air passages is inflamed. This is followed by, thirdly, a morbid secretion,—being an effort of nature to arrest or terminate the inflammatory action. Hence, we have the copious expectoration in the advanced stage of inflammation of the bronchial mucous membrane, and the peculiar mucus-like discharges in dysentery. Sometimes the fluids thus formed are very copious, as seen in dropsies, and the effusion tending to diminish inflammatory action has been classed among

the terminations, so called, of inflammation. The effusion of serum of which I have just spoken, must not be confounded with that of coagulable lymph, which, escaping from the vessels of an inflamed structure in the fluid form, soon coagulates, forming a substance capable of being organized and vitalized, if kept in contact with the living tissues. From this effusion and organization of coagulable lymph result those adhesions which take place between opposing surfaces,—as between the Pleura costalis and Pleura pulmonalis, &c., and also between the surfaces of a healing wound. True, the lymph and serum may be effused together, but the lymph, by its tendency to coagulate, becomes separated from the serum, just as the clot is separated from the serum of blood when drawn from the body. The tendency of lymph to become organized demonstrates its fibrinous character, and clearly distinguishes it from the albuminous exudation which sometimes takes place from irritated surfaces, and which, by evaporation, becomes consolidated, but never receives nerves, or blood vessels, and consequently does not become a living structure. A striking example of this kind is seen in membranous croup, of which I shall speak in a future lecture.

The phenomena resulting from inflammatory action will be further considered, but before doing so, I deem it best, in order to a full comprehension of this branch of the subject, to speak of the causes of this form of morbid excitement.

The *causes* of inflammation are of two kinds, *local* and *general*. Local influences, or local irritation, will produce inflammation, and the degree of the inflammatory action will depend much on the nature and amount of local irritation,—or, in other words, on the character of the local cause,—but more on the constitutional condition of the individual at the time. If the system were in perfect health at the time the local cause of inflammation occurred, the resulting morbid action might be expected to be proportionate to the character of the cause that produced it, but very often the inflammation, following a given local irritation, will differ in degree from what would be anticipated in a perfectly healthy system,—its nature and extent being dependent upon the general derangement of the system, but especially on the condition of the blood. Hence it is of the first importance, in observ-

ing the train of morbid phenomena connected with inflammatory action, to look to the general system, not only in regard to the condition of the blood, but to the character of the secretions and the constitutional predisposition to this form of disease. Proper attention, in these respects, will often enable you to anticipate and prevent inflammation, or at least to meet it successfully, when from the nature of the exciting cause alone you would not apprehend its production. The importance of this suggestion is exemplified in the predisposition to disease of particular organs of the body, as found in some persons, producing great tendency to the development of inflammation under the influence of causes which would not, under ordinary circumstances, produce such an effect. Thus, there is no necessary connection between inflammation of the lungs and of the bowels, yet where there is a strong predisposition to intestinal disease, whether hereditary or acquired, it is very likely to be developed during an attack of pneumonia. Again, it is no uncommon occurrence to find local inflammation supervene upon febrile action of a specific character, and readily subside upon the removal of the general febrile disease. This is often observed in our malarial fever, where no local disorder is necessarily connected with the febrile disease; but where, from predisposition to local determination, inflammatory action is excited in some organ of the body. That the local inflammation in such a case is secondary, is proved by the fact, that an early arrest of the fever will cause the local inflammation to subside. Hence, in speaking of the treatment of fevers attended by the local inflammatory complications, I recommended the removal of the fever first, by appropriate remedies, — that being the cause, and the local disease merely an effect. But if, after the fever is arrested, the inflammation do not subside, having been kept up by the exciting febrile cause until it has become an independent disease; in that case additional treatment will be required for the local disorder. And I again repeat, that the proper treatment to arrest the fever, in such cases, will not aggravate the local difficulty; for, bear in mind, that in removing the febrile affection, you remove the cause of the local inflammation.

It may be asked why it is, that, in some constitutions, there exist these predispositions to local disease. I reply, that it is

owing to some peculiar conformation or structure of the organs, over which it may not be in your power to exercise any control. And this fact will be important in your prognosis of the case, as well as in the selection of remedies. If you find an individual, for instance, with a strong hereditary predisposition to disease of the lungs, laboring under a present attack of pulmonary inflammation, your prognosis would not be so favorable as in a different case. So in some families we meet with hereditary predisposition to disease of some particular organ—as the bowels, lungs or brain; and where such is the fact, it is an important guide in treatment. Where, for instance, there is a natural tendency to inflammation of the bowels, our treatment for such an attack should certainly be quite different from that which would be proper in case of accidental inflammation of that part of the body. While in the latter case you might use very prompt and efficient measures to remove the local irritating cause, in the former you should pursue a more mild and soothing mode of treatment. Where there is constitutional predisposition to inflammation of the brain, it is a matter of great importance, which should by all means be known, and constantly borne in mind, in treatment. In some diseases, it might be advisable to administer a narcotic, but if you find a hereditary disease of the brain, or a hereditary tendency to cerebral inflammation, great caution would of course be requisite in the use of such remedies, while other, more active and efficient measures, would be indicated.

To conclude my remarks on the causes of inflammation, I ask you to note, that, in view of what has been said, a local cause trivial in itself may excite morbid action, which, from constitutional predisposition, may result in extensive and indeed general inflammatory disease; and that general influences,—such as febrile action, or the constitutional effects of medicines,—may tend to develop local inflammation where there is either hereditary or acquired predisposition to such local affection; and finally, that the constitutional condition and natural predisposition of the patient should receive special attention, where inflammation is present or to be apprehended.

Inflammation appears to be a peculiar effort of the system to repair injuries resulting from violence or morbid influences, and

to rid itself of disease. Even where local inflammation supervenes upon a general disease, as malarial fever, I regard it in this very light; and I hope to be able, in the progress of our discussion of this subject, to prove to your satisfaction, that the legitimate tendency of inflammation is the repair of structures, and the restitution of the system to health. I hope to prove this from the well known condition of the organs under its influence, as well as from the best authorities; and although inflammation may result in the destruction of an organ, and even in the termination of life itself, it is only an instance in which the method of nature has been incompetent to, or has been prevented from, the accomplishment of its end.

The *results* of inflammation are various and peculiar, yet capable of being classified in a manner which has great utility, in enabling us to comprehend the nature and tendency of this form of disease. The variety in the results of inflammatory action, is caused, no doubt, by differences in different cases in regard to the condition of the system at the period of the disease, and the character and morbid force of the cause that produced it. This is remarkably exemplified in the great facility and rapidity with which some individuals recover from the most extensive and serious accidents, while in other cases the most trifling injuries are followed by serious, and often fatal results. The condition of the blood has the most important influence upon both the character of inflammatory action during its progress, and the results which may be produced by it. Magendie has fully demonstrated this fact by his experiments. "I am anxious," says he, "to recall your attention to the experiments we made, last session, on the blood. You learned, through them, the influence that fluid exercises on our organs. You saw me produce, at will, in animals, the majority of the striking phenomena determined by the most terrible diseases, for the relief of which, science is powerless. You saw me give rise, at pleasure, to pneumonia, scurvy, yellow fever, typhoid fever, &c." "These positions acquire new importance, from my having been enabled, since last session, to make some very curious applications of them. Take, as an example, malignant pustule. That frightful disease, in which inflammation is said to play so important a part, coincided in the

case of a subject, who died a short while past of it, at the Hotel Dieu, with non-coagulability of the blood."

The *results* of inflammatory action, denominated by some of the modern authorities its *terminations*, are numerous ; and though differing very widely in different cases, they all tend in a greater or less degree to impair the organized tissues, or destroy their healthy action. Each, however, is attended by its own peculiar symptoms and train of phenomena, and each is characterized by its own specific changes in the vessels and structures involved, differing essentially from those pertaining to any of the others.

Resolution. The most simple, and, where circumstances are all favorable, the most natural, result of inflammatory action, is a gradual decline of all the abnormal appearances, with a restoration to healthy action. In this case, the pain diminishes, the swelling subsides, the general fever declines, and all the other symptoms gradually disappear ; and the part affected being wholly restored, regains its natural color, form and functions. This is termed by authors, *Resolution*, in which there is no formation of pus, and no permanent injury to the structure of the part.

Effusion. Another result of inflammation, is, where some of the elements of the blood are discharged from the vessels into the surrounding cellular tissue, or from the surfaces of serous membranes into the cavities lined by them. In some cases, this effusion consists really of blood, either in a state of decomposition, or deprived of its plastic qualities, so as to be rendered unfit for circulation in the minute capillary vessels,—as the black vomit in yellow fever, and the bloody evacuations in dysentery ; though in the latter case, it is accompanied by a mucous secretion. Whether this effusion of blood is accomplished by a sort of secretory process, or by exudation through the relaxed tissues of the mucous surface, it is not necessary to discuss at this time.

Induration and Adhesion. Inflammatory action, occurring in the cellular structure, will be accompanied by more or less swelling ; and not terminating in resolution, there will be an effusion of serum and lymph, not unfrequently increasing the tumefaction by the organization of new living tissue. Where this is the case, and the cellular structure is very loose, the inflammation has a

tendency to become chronic, and result in *induration*. But, by the same process precisely, where the effusion occurs between the serous surfaces of membranes, such as the pleura, peritoneum, synovial capsules, &c., or between artificial surfaces, as of wounds, the coagulating lymph becoming organized, interposes a new living structure, which forms a bond of union between the opposing surfaces. This effect is called *adhesion*. By this mode, nature repairs those injuries which result from a destruction of continuity of structures; and by this same mode, she surrounds inflammatory action with a barrier to limit its extent, in many cases; and it is an interesting fact, that, generally, in the cases last mentioned, the newly organized structure is removed by absorption, after the disappearance of the morbid action, which both rendered it necessary, and effected its production. Sometimes, however, the new growth remains as a permanent structure, after all other traces of inflammation have disappeared; especially in adhesions between serous membranes.

Where the effusion following inflammatory action is but slight, the restorative powers of the system are usually sufficient to dispose of it, without any serious lesion; perfect and complete recovery follows, and few, if any, traces of previous morbid action can long be seen. This, however, is not the case in all inflammatory diseases. In acute rheumatism, for instance, where a high degree of inflammation is supposed to exist in structures of a low grade of organization, the decline of inflammatory action is frequently followed by effusion within the capsular ligaments; and although such effusion is generally inconsiderable as to quantity, yet the difficulty with which it is absorbed, often renders recovery very slow and tedious.

Hæmorrhage. The *effusion of blood*, or *hæmorrhage*, generally takes place from the mucous surfaces. In bronchitis and inflammation of the lungs, one of the most common symptoms is a bloody sputa, or expectoration. These effusions or secretions, should not be considered healthy or normal productions, but are the results of morbid processes, manifesting an effort at restoration. We never see an effusion of a healthy, natural fluid, from any structures in a diseased condition. In pleuritic inflammation, the effusion does not accompany the more active stage of

inflammatory action, but occurs on its decline ; and is a summary method of nature to relieve the engorged vessels, and restore a state of health. Such, also, is the case with peritoneal inflammation. Another benefit arising from effusion in serous cavities, is, that the fluid thrown out exerts a protective influence, by keeping the diseased surfaces separate, while its discharge relieves the morbid action, and thus in many cases adhesion is obviated, which, from the difficulties it may occasion, and the permanency of its duration, is more to be dreaded than even dropsy itself.

Effusion cannot, therefore, be said ever to accompany active inflammation, but it follows it. The natural secretion is arrested, and the inflamed part becomes dry ; and where the morbid action is very intense, it even becomes both rough and dry. But, more commonly, there is some effusion upon the borders of the inflamed part or structure. Even that discharge which accompanies dysentery, coming as it does, from a mucous surface, is altogether different from healthy mucous, in most instances ; and in those cases where the discharges do contain mucous closely resembling the normal secretion, it does not emanate from vessels involved in active inflammation, but from the adjacent parts in a state of irritation ; while from the relaxed vessels immediately implicated in active disease, a peculiar effusion or exudation of a sero-sanguineous character, takes place. In the severe and malignant forms of dysentery, this last mentioned discharge often resembles water in which bloody meat has been washed ; but in the milder forms of the disease, the discharges consist of a mucous secretion, with blood entangled in it.

I have already stated that *induration* often follows effusion, and perhaps this cannot be more aptly illustrated, than in those cases of chronic inflammation of the liver and spleen, so often found in this western country. Enlargement of these organs is not the result of a mere accumulation of blood, but an effusion of serum in the cellular structure. We find the same thing to occur very frequently in the skin, where inflammation is followed by induration of the dermoid tissues ; and the same result is often produced by inflammation of the lymphatic glands. Protracted venereal disease, will generally produce induration of lymphatic glands of the groin, and other parts of the system.

Suppuration, or the formation of *pus*, is another result of inflammatory action. A great difference is found to exist in different tissues, as to their tendency to the formation of pus. The loose structures, and those less highly organized, are more liable, as a general rule, to form pus under the inflammatory process, than those tissues which are more dense, and which have a higher grade of organization. This production of inflammation is very different in character, also, in the different tissues and organs; each of these has a tendency to yield a peculiar kind of pus. In the cellular structure, this matter is yellow or greenish yellow, and somewhat consistent, having the thickness of cream; and when it occurs in a healthy or sound state of the constitution, it is called "*healthy, or laudable pus*," tending to the restoration of the part to a healthy condition. In the serous tissues, the matter is more thin and watery. In the parenchymatous structure of the liver and spleen, the pus produced bears some resemblance in color to the organs or parts in which it is formed. The serous membranes are not very liable to suppurative action, while nothing is more common in the loose structures of the mucous membranes, and in the subcutaneous areolar tissue.

When this result has occurred, it may generally be known by the rounded, tumefied, smooth and shining appearance of the part; by its becoming less painful, with a decline in the general febrile excitement, which may have existed; and by a distinct sensation of fluctuation, upon proper examination. To determine the existence of matter, is often a subject of some embarrassment to the young physician; but by placing the palmar surface of the fingers on one side of the part supposed to contain pus, and with the fingers of the other hand applying a gentle tap to the opposite side, or, what is a better method, making gentle pressure with the fingers a few times alternately on opposite sides of the tumor, the wave or fluctuation may be distinctly felt, if pus be present.

"Authors are not agreed as to the precise mode in which pus is produced. By many it is believed to be the product of a secretory process. Gendrin, however, maintains that it results from some change in the blood independently of any action of the capillaries; and that this change may be effected, either after the blood has been effused, or while it still remains in the vessels; the

pus, in the latter case, being allowed to pass out through the coats of the vessels unaltered. According to that author, when blood is effused in inflammation, it first coagulates; if suppuration do not take place, the serum is then absorbed, the red globules lose their color, and the clot becomes organized; but if the disorder advance to suppuration, the blood gradually loses its color, and is changed into pus. Gendrin also believes that the fibrinous fluids, effused in the course of inflammation, are often converted into pus. They who consider pus to be the product of secretion, ascribe these apparent results to the gradual absorption of the effused blood and fibrin, and the deposition of pus in their place. Gerber believes that the pus corpuscles are produced by the degeneration of the exudation corpuscles, which form in fibrin after its exudation. It is certainly not impossible, that blood or fibrin may be changed into pus after extravasation; but when it is considered that pus, ready formed, is often thrown out abundantly from the inflamed tissues, without any previous effusion of blood or fibrin, the inference appears necessary, that it is the direct product of a secretory action, performed upon the blood of the capillaries, either by these vessels themselves, or by the ultimate cells.

“It is doubtful whether pus is at all times the product of inflammation. It is occasionally found disseminated in tissues, or collected together in masses, in the lungs, liver, and other parts of the body, without any evidence of inflammation in those organs during life, and without any other ordinary appearances which that affection leaves behind it after death. The pus appears to have been merely deposited by the vessels, without any coëxistent derangement of the tissue. Such phenomena are not unfrequently observed in the cases of individuals who have recently suffered amputation or other operation, by which a suppurative disease of longer or shorter continuance has been removed. But they are also said to be presented in some rare instances, in which no inflammatory source of pus, existing at the time, or within a short period previously, could be discovered. In the former case, the collection of pus may be ascribed to the previous absorption of that liquid from the suppurative source; and it is known that pus occasionally enters the circulation by absorption; as it has been found, both in veins and absorbents, proceeding from the

neighborhood of purulent deposits. But no such explanation can be given in the latter case. It has been suggested by Andral and Tessier, that there may exist a purulent diathesis, which may dispose to the formation and deposition of pus, as the tuberculous diathesis does to that of tuberculous matter, without any essential complication with inflammatory action. Some suppose that pus, in these cases, is formed in the blood out of its healthy constituents ; and, where any suppurative focus exists, the change may be ascribed to the absorption of a portion of the pus, and the excitement, by its presence in the blood, of a sort of purulent fermentation. Others, again, believe that it is the result of inflammation in the lining membrane of the veins, or blood-vessels in general.

“When suppuration is established, the violence of the inflammation abates ; and hence its occurrence has been erroneously considered as one of the terminations of inflammation. The pus may appear upon the free surface of membranes, or diffused in the interstices of the tissues, or collected together within the substance of the different structures, forming abscesses.”—WOOD.

While speaking of the effusion of coagulating lymph, I had occasion to describe, with perhaps sufficient minuteness, those structural changes which result in an increase in the quantity or density of the living tissues, called adhesion and induration. Other structural changes also result from inflammatory action, differing very widely from those just mentioned ; being characterized by diminution of vitality and consequent approximation of the tissues to the character of inorganic foreign matter. These results of inflammatory action are expressed by the terms *softening*, *ulceration* and *gangrene*.

Softening, to a certain degree, may be said to be almost a necessary consequence of a high grade of inflammatory action ; the engorgement of the vessels and interstitial effusion which produce tumefaction, tend necessarily to diminish the natural cohesion of the tissues, and render them more easily separable than in health. As inflammation progresses, this change of structure increases, until sometimes the tenacity of the textures becomes so much diminished that they will break down under the application of slight mechanical force. Indeed it occasionally results in the total disorganization of a portion of the structure, which is either removed

by absorption, or is discharged with the purulent secretion. Where softening proceeds to the degree just described, a suppurating surface is generally left entirely similar to that produced by the removal of a gangrenous slough, or the discharge of an abscess.

Ulceration depends upon the process of what is denominated interstitial absorption, by which such portions of a structure are removed, as have been so far deprived of their vitality, as to be incapable of resisting the power of the absorbent vessels. Where this occurs at the surface of an inflamed part, free or open ulcers are produced; but when it takes place in the interior of an organ, it produces an excavation, which may serve as a receptacle for pus; and the process of *ulcerative absorption*, as it is termed, being continued, generally in the direction of the surface of the body, a way is thus provided for the discharge of purulent matter. In this case we have what is called an *abscess*, which differs from a superficial *ulcer*, only in having a deeper origin,—being produced by the same process.

There can, I think, be no doubt that ulceration results, as has been said, from the destruction of vitality in the tissues, to a certain extent, by the inflammatory process, which renders them incapable of resisting the action of the absorbents, and they are consequently dissolved and carried into the circulation. Such portions of the devitalized matter as are not thus taken up, are discharged in the form of unhealthy pus.

Gangrene implies the death of a part, to a greater or less extent. This is the most formidable result of inflammatory action, but fortunately it is the least frequent in occurrence. Some authors make a distinction between the terms gangrene and mortification; using the former to denote the condition of a part immediately preceding its actual death; and the latter to express the state of a structure after its vitality has become entirely extinct. I adopt the definition of Prof. Wood, who says:

“In the course of an attack of inflammation, a portion of the diseased structure sometimes loses its vitality, and passes from under the influence of physiological to that of chemical laws. This loss of life in a part is denominated mortification, the resulting condition, gangrene or sphacelus. Many writers, however, following Galen, make a distinction between gangrene and sphacelus,

applying the former term to the state which immediately precedes the absolute death of a part, the latter, to that which exists after its death. There is some convenience in this division ; as we frequently have occasion to refer to that condition, in which mortification, though strongly threatened, or inevitable, is not completely accomplished ; but this condition is, in fact, nothing more than one of the phases of inflammation, and can scarcely receive a distinct name without some confusion. In using the term gangrene, therefore, I shall consider it as applicable to parts already dead ; though the epithet *gangrenous* may sometimes be employed as expressive of a state allied, or approaching to gangrene.

“ The immediate cause of gangrene, in inflammation, is probably a disproportion between the excitement of a part and its powers of vitality, the latter being entirely exhausted by a great excess of the former. If the life of a part is feeble, a comparatively slight elevation of its action may produce its death ; if vigorous, a great excess of excitement is requisite to this result. Whatever, therefore, weakens a part, or excessively excites it, may dispose to gangrene ; and those parts are more liable to this condition, which are naturally the weakest. There are certain states of the system, and certain diseases, which are characterized by a universal reduction of vital power, and in which inflammation is very apt to run into mortification ; and there appear to exist certain specific inflammations, which are much more liable to this result than inflammation of the ordinary character. The blood also is sometimes in a condition which strongly predisposes to gangrene, probably because it is unable to afford those supplies, and that healthy stimulus, which are requisite to vigorous health. Gangrene, moreover, may occur from obstruction to the circulation in the capillaries of the inflamed part.”

The symptoms denoting an approach to gangrene are, a change of color to a purplish or livid hue, owing to the languor of the capillary circulation ; reduction of sensibility in the part immediately threatened, though very intense pain may be experienced, with a sense of burning in the associated structures ; a diminution of temperature ; loss of tension and elasticity in the part, giving it a sort of doughy feel ; and a clammy moisture, generally, upon the surface, caused by the effusion of serum from

the vessels. The circulation finally ceases altogether in the part, its sensibility is entirely lost, the color becomes more dark and livid, and a red line is formed, indicating the extent to which death has extended. Chemical changes now commence in the sphacelated portion, fetid gases are emitted, with other evidences of spontaneous decomposition. This is termed putrefaction, and whatever doubts may have existed as to the occurrence of mortification, they will be completely removed upon the appearance of the putrefactive phenomena.

Gangrene, with the exception of resolution, may with more propriety, perhaps, than any of the results of inflammation, be denominated its termination, as the inflammatory action does, of course, cease in the dead structure; but this is not the case in adjacent tissues. As has been said, a red line, defining the boundary of the mortification, is seen, ulceration occurs, and the gangrenous portion is thrown off in the form of a slough, leaving a surface in which the inflammation may progress, resulting in successive sloughings, and finally in death; or granulations may be formed and the part be restored to health. Besides, inflammation is not a necessary forerunner of this condition; for, by what is termed *dry mortification*, the death of structures may occur, without the appearance of any inflammatory excitement. So that, in neither point of view, can we with propriety designate gangrene, or mortification, as a *termination* of inflammation.

The fact is, that the usual mode of expression among authors, by which inflammation is represented as having a certain number of terminations, from three up to ten or eleven, according to the fancy of the writer, has produced much confusion, and rendered the subject very difficult of comprehension to students. The phenomena which have been thus designated are truly results of inflammatory action, but their occurrence does not, by any means, imply a termination or cessation of the morbid action. Neither can the term be properly employed as indicating a special tendency of particular forms or grades of inflammatory action to result in this, that, or the other termination.

Gangrene itself, we have seen, is usually accompanied by ulceration; and *suppuration* may follow, *granulations* be formed, and the lesion be healed by *cicatrization*. Yet each one of these is

laid down in the books as a *termination* of inflammation, acute or chronic.

Granulation is a process of repair, by which the loss of structure is partly or wholly supplied, and a healthy condition restored, in parts which have suffered from the effects of ulceration, supuration, or mortification. It is effected by the effusion of coagulable lymph upon the diseased surface, which becoming organized, forms a new surface, composed of small, red, vascular, and conical elevations. Upon this surface a new effusion and organization takes place, and so on, until the process of repair is completed. This process, when proceeding kindly, is attended by the secretion of healthy pus, which lubricates and protects the delicate and tender granulations; and there is a slight elevation of temperature, indicating that the process now going forward is truly an inflammatory one, though tending to restore the injuries resulting from the previous march of inflammatory action.

There is a tendency in granules, in contact, to unite and form a continuous structure. Thus it is that the surface of a part will be finally rendered smooth, by the union of adjacent granules and their final coalescence; and by the same means two granulating surfaces, when in apposition, unite by what surgeons call the *second intention*. The only difference between this mode of union and that by *first intention*, is that in the latter case the coagulating lymph forms a bond of union which cements the incised surfaces together, so to speak, without the formation of pus, or granules, while in the latter these processes are necessary to fill up the space between the two surfaces. But both are effected through the interposition of coagulating lymph, under the power of the vitalizing principle.

This mode of repair, by which a part is restored to a more or less perfect form and structure, is termed *cicatrization*, and the remaining scar or trace indicating the existence and location of previous lesion, is denominated a *cicatrix*.

I have now given you an account of the various recognized results of inflammatory action. They may be thus recapitulated: 1. resolution; 2. effusion of serum; 3. deposition of lymph; 4. suppuration; 5. adhesion; 6. induration; 7. softening; 8. ulceration; 9. gangrene; 10. granulation; 11. cicatrization. An

example of all these results of inflammation may be seen in a severe boil, and more particularly in the carbuncle. In the centre, or core, we have a *slough*, or *gangrene*; this is separated from the walls of the cavity by *ulceration*; this is followed by *suppuration*. Farther from the centre there is *effusion*; still farther, organized *lymph*, or *adhesion*. The structures of the tumor are more or less *softened*, while a degree of *induration* will remain often for a long time after the inflammatory excitement has passed away. The centre of the boil or carbuncle will heal by *granulation* and *cicatrizatio*n, while the inflammation in its border will subside by *resolution*.

I will now briefly notice the peculiarities observed in the inflammatory process, according to the tissue in which it occurs. It is true that the general outlines of inflammation are similar in all parts of the system, sufficiently so at least to enable us to recognize the affection wherever observed as belonging to this genus. Still there are peculiarities in the phenomena developed by this sort of morbid action, in different tissues of the body, which have led to an arrangement of inflammatory disease into what might, perhaps with some propriety, be termed species; and it is important to give some attention to this view of the subject.

In the *cellular* or *areolar* tissue, inflammatory action exhibits more uniformly than in any other, all the symptoms and results characteristic of this form of disease; and consequently its course and phenomena in this tissue have been taken as the type of inflammation. When it occurs near the surface in this tissue it produces a tumor or boil, technically called a phlegmon, from its color and heat; and from this the term phlegmonous has come to be applied to ordinary inflammation in all parts of the body.

The disease in this tissue is apt to surround itself with a barrier by adhesive inflammation, and thus produce a circumscribed abscess; but occasionally it diffuses itself very widely, producing wide spread havoc in the cellular tissue by a sort of softening, or gangrenous suppuration. When the *skin* is involved in this form of diffused inflammation, it is called *Erysipelas phlegmonodes*.

Common inflammation in this tissue is attended usually by an aching pain which becomes throbbing when suppuration is about to occur; there is apt to be much swelling and local heat, though

but little general febrile excitement. Hence, when some vital organ is suffering from inflammation of its areolar tissue, the danger is often far greater than outward or general symptoms indicate, while in some other tissues very slight and in itself unimportant inflammation, may produce very marked general febrile symptoms.

As was shown, in the case of a boil, this species of inflammation may be characterized by all the results of inflammation in a single case; or it may eventuate in resolution without progressing so far as to destroy the continuity of any structure. Effusion of serum and deposition of lymph are seldom wanting in areolar inflammation.

In the *serous tissue*, inflammation is characterized by an acute, severe pain, generally; and by an inflammatory or sympathetic fever, upon the peculiar symptoms of which it is not necessary now to dwell. Effusion is its most usual result, though most or all of the effects of inflammation may be produced in this tissue. Adhesion of opposing serous surfaces is not an unfrequent event, as was stated while speaking of coagulable lymph.

In the *dermoid tissue*, inflammatory action assumes a great variety of forms, and from its exposed position, it is peculiarly liable to such irritating causes as are likely to result in morbid excitement. It is subject, also, to many specific inflammatory affections, symptomatic of general disease,—as the exanthemata of certain fevers, and to erysipelas, in its several forms.

Inflammation of the *skin*, as resulting from the effect of a local irritant, is distinguished by a peculiar, burning pain, by a bright red flush, some swelling generally, and a sensible increase of heat. It may subside speedily, by resolution, but if continued, serum is effused beneath the cuticle, producing what is called a blister; the inflammation may progress from step to step, and exhibit all the results before described. Gangrene is as frequent an event in cutaneous inflammation as in the disease of any other tissue.

The *mucous tissue* is, in reality, only a continuation, with some modification, of the external integument, and like it possesses sympathies with the entire system to an extent which renders it peculiarly liable to be implicated in the affections of other

tissues. It is, furthermore, exposed to the irritating action, both mechanical and chemical, of all uncongenial substances which may be swallowed, or formed within the hollow viscera. The pain experienced in an inflamed mucous membrane is of a smarting or stinging character, as in the eye in ophthalmia, inflammation of the urethra, &c. But little pain is experienced in the mucous coat, itself, of the stomach and bowels—the gripings in dysentery, and spasmodic pains which sometimes occur in gastritis, being the result of irritated and spasmodic contractions of the muscular coat. Hence, between the muscular efforts, as between the discharges in dysentery, the patient is generally exempt from pain. An inflamed mucous surface may exhibit any shade of floridity, from a slight flush to a dark red or reddish brown, owing to the intensity and duration of the morbid action; and it is generally more or less thickened. The inflammation may terminate by resolution, or it may eventuate in softening, ulceration, suppuration or gangrene. It is generally characterized at first by increased mucous discharges; the inflamed surface then becomes dry, or at least is not moistened by any secretion of its own; afterwards, fluids, as vitiated mucous, with serum or blood, or both, are discharged; and finally, if the disease progress, pus will be thrown out from the inflamed part. These peculiarities, marking the different stages of the affection, are usually clearly observed in the expectoration during bronchitis, and in dysenteric evacuations.

The *cartilaginous* and *fibrous tissues*, under which terms I intend to embrace all the forms of cartilage, and of tendinous, ligamentous, and fibrous structures—such as the dura mater, periosteum, and animal substance of bones—are liable to inflammation, but less so than the other tissues. The affection in most instances, when occurring in these structures, presents the symptoms of rheumatism or gout. Although these tissues possess little or no sensibility during health, in disease they may become exquisitely sensitive, and the inflammatory action is generally characterized by a continued gnawing pain. The affection may assume the highest grade of morbid excitement, exhibit all the phenomena of inflammation, and result in death of the part, or gangrene. The march of the disease is generally slower than in other struc-

tures, but it may be none the less destructive. It is true, as stated by authors, that tendons, &c., resist to a considerable extent the process of gangrene, even when it occurs in structures in immediate contact with them, but it is not true that either or any of these tissues is exempt from gangrene. I have seen an entire limb, tendons, ligaments, bone and all, come off in a slough. Necrosis is a result of inflammation in the bone, where the whole bone, and exfoliation where its surface only, is involved, which I cannot distinguish from mortification.

The rheumatic variety of inflammation rarely produces destruction of structure in any manner; its most common result is effusion.

LECTURE XVIII.

INFLAMMATION—CONTINUED.

Chronic Inflammation—General effects of Inflammation on the Blood—Hunter's Opinion—Gendrin's—Buffy Coat—Nervous Influence—Fibrin—Serum—Magendie on Bleeding—Effects of Inflammation beyond its Seat—Sympathetic Fever—Microscopic changes in Inflammation—Contraction of Capillaries—Relaxation—Engorgement—Effusion of Lymph—Quotation from Tweedie—From Hunter—From Magendie, on Capillary Circulation.

Having defined the term, *inflammation*; described its general symptoms and results as developed in the parts immediately involved; and noticed the peculiarities which characterize it in different tissues; we will, on the present occasion, inquire more particularly into its influence on the blood; its relation to the general system; and the minute changes which occur, during its progress, in the capillary system, as discovered by microscopic observations.

You observe, Gentlemen, that I have laid out pretty broad grounds for consideration this morning; grounds embracing matters of great practical importance, and principles which involve the philosophy of a vast range of human diseases. But before proceeding to the discussion of the subject in this light, I will make a collateral remark or two, upon the division of inflammation into the acute and chronic varieties, as recognized by the authorities.

In *chronic* inflammation the same phenomena may be said to occur, with all the changes, and most of the modifications which characterize the *acute* form, as presented in the lecture of yesterday; the main difference consisting in the slower march, and

more protracted duration of the former ; owing to difference in the intensity or continuance of the exciting cause, and perhaps to the influence of peculiar states of the general system. Every conceivable grade of violence is observed in the inflammatory process, as we examine different cases, according as the cause and constitutional condition, seem to favor a slower or more rapid progress; so that authors have even introduced another term indicating an intermediate grade—the *Subacute* ; but the distinctions thus attempted to be made, are not based upon real physiological or pathological differences, and are consequently of very little practical importance.

We have heretofore considered inflammation mainly as a mere local affection ; but although its observable phenomena are local in their character, yet the disease generally exerts important influences upon the blood, and upon organs remote from the immediate seat of the morbid action, and not directly connected with it; so important indeed as to demand more attention and create more concern than the primary disorder.

As to the character of those sensible and apparent *changes in the blood*, which are observed to be the usual attendants on inflammation, there is no room for difference of opinion ; but the cause of those changes has given rise to no little discussion. For instance, all agree that inflammation, under most circumstances, is associated with a condition of the blood, which is indicated by a peculiar appearance on the surface of that fluid, when drawn from the system and permitted to coagulate, called the “buffy coat.” This is a whitish or yellowish-white, and sometimes greenish stratum, which is formed upon the upper surface of the blood, during coagulation, which all authors recognize as consisting principally of fibrin ; but in regard to the cause of its appearance under such circumstances, much difference of opinion has been expressed. Hunter attributes it to the slower coagulation of inflammatory blood, allowing the red corpuscles to subside by force of gravity before the clot is formed. Gendrin, on the other hand, asserts that the coagulation of blood affected by inflammation, commences sooner, and is sooner completed than that of ordinary or healthy blood. Here, then, we have two opinions, founded, as they both remark, upon their own observations, which are in direct conflict

as to a fact, in relation to which there ought to be no great difficulty, certainly, in arriving at the truth. It is not, therefore, surprising that authors should differ in regard to the cause of the change in the nature and constituency of the blood, by which it is disposed to coagulate in this peculiar manner.

The influence of inflammation in effecting the alteration of the blood throughout the system, is by no means uniform. The buffy coat will not always appear on the blood of inflammation; and it does undoubtedly sometimes occur in blood drawn from systems in which no inflammation existed. Hence, although this peculiar condition of the blood generally makes its appearance under the influence of inflammatory action, it is a question whether the change is effected by the direct agency of the local disease, exerted upon the blood as it passes through the capillaries of the inflamed part, or whether it is a secondary result dependent upon a peculiar condition of the nervous system, which, although generally brought about by the inflammatory process, may exist independently of it.

This last view of the subject is rendered very plausible by the fact, that although the system may be enduring the most intense inflammatory action, the blood first drawn will not present the peculiarity referred to; but if sufficient blood be abstracted to relieve the patient from the oppressive excitement, the buffy coat and "cupped" appearance will characterize it upon coagulation. It would also appear to be more constantly manifested in those inflammatory conditions connected with disease of synovial membranes, where the inflammation itself depends on constitutional disturbance and a vitiated condition of the blood.

This view of the case is greatly strengthened from the undisputed influence of the nervous system in producing serious alterations in the circulating fluid, as evinced in those destructive epidemics of the south and west, such as congestive, pernicious and yellow fever; in which the blood is often found in a decomposed condition, evidently referable to the enervating influence of the poison upon the nervous system.

From all that has been said we may, I think, reasonably infer, that the condition of the blood which causes it to exhibit the buffy coat and cupped appearance, is the result of defective innervation,

and that it is merely a step in the progress of morbid action towards the decomposition of the vital fluid, the healthy condition of which can only be maintained by the faithful performance of the functions of the nervous system. Or, in other words, that this condition of the blood is not produced by the direct influence of inflammation on that fluid, but is a secondary consequence of the inflammatory action.

This discussion, however, is one of very little practical importance, except in so far as this state of the blood has been made an indication for bleeding in the treatment of inflammation; but this doctrine is now well nigh abandoned.

The most sensible influence which inflammation exerts upon the blood, as determined by analysis, is manifested in the *increase of its fibrin*. This, it is said, is uniformly augmented in quantity during the progress of inflammation, commencing from the first establishment of this abnormal excitement, and diminishing as it declines. The elements furnishing the materials for this sudden increase of fibrin are supposed to be derived from the albumen of the blood, as that particular constituent is said to be sensibly diminished.

This increase of fibrin in the vital fluid illustrates the wonderful resources of nature for accomplishing the purposes of the animal economy. The best experiments have shown that a due proportion of fibrin is indispensable to the free circulation of the blood in the capillaries, and that a deficiency of this element is attended by obstructed circulation in some of the vessels, even in ordinary health, while in inflammation we have positive obstruction in the vessels of the inflamed part, as shown by very careful microscopic observations. Admonished of this fact, nature, with her wonderful resources and skill, sets about the work of removing the obstruction, and repairing the injury. As the best means for the accomplishment of these purposes, an immediate supply is afforded of that element which is best adapted to promote freedom of circulation in the obstructed vessels, and furnish the materials necessary for repair; and this supply is continued until the inflammatory process subsides, when this particular element is gradually reduced to its normal proportion.

The well known impediment to free capillary circulation, pro-

duced by the presence of serum in the blood beyond its ordinary and healthy proportion, taken in connection with the equally well settled facts, that fibrin facilitates the movement of the blood in the capillary vessels, and that bloodletting diminishes the relative amount of fibrin, and increases that of serum, appears to me to afford one of the most conclusive arguments against the abstraction of blood in inflammatory disease that can be adduced upon any proposition. These facts also conclusively demonstrate the proposition, that the general symptoms of inflammation result from the efforts of the system to remove disease.

The facts I have stated, to wit: the increase of fibrin in the blood, during the progress of active inflammation, and its decrease on the decline of the inflammatory phenomena, are established by the very best authorities; while the influence of the loss of blood in diminishing the due proportion of fibrin in the circulating fluid, and thereby materially increasing the obstruction in the capillary vessels, is shown by recorded experiments and demonstrations, equally reliable and authoritative. Some of the testimony to which I refer, it may not be improper to read in this connection. Says Magendie, in addressing his class:

“You are already acquainted with a great number of causes that modify the blood, and induce disease; but you are scarcely, perhaps, prepared for the announcement, that by means of a therapeutical agent, holding the first rank amongst the fashionable remedies of the day, I produce the very same alterations in the blood, and, as their result, the very same disorders in the economy. This may, perhaps, strike you as a random assertion; but my words are not lightly spoken. I have within my reach the guaranty of their veracity,—experiment shall confirm them. I assert, then, loudly, and fear not to affirm it, that bloodletting induces, both in the blood itself, and in our tissues, certain modifications and pathological phenomena, which resemble, to a certain extent, those we have seen developed in animals deprived of atmospheric oxygen, of drink, and of solid food. You shall have the material proof of the fact. Here are three glasses, containing blood drawn from a dog on three different occasions, at intervals of two days. The animal was in good health, and I took care to supply him abundantly with nourishment. In the first glass, you

see that the serum and clot are in just proportion to each other ; the latter, which is perfectly coagulated, forms about four-fifths of the entire mass. This specimen of blood, consequently, appears to possess the desirable qualities. Now turn your attention to the second glass. The animal was still well fed when its contents were drawn, and yet you perceive an evident increase in the quantity of serum ; the clot forms, at the most, only two-thirds of the whole. But here, in the product of the third venesection, although the animal's diet remained unchanged, we find a still greater difference. Not only is the proportion of serum more considerable, but its color is changed. It has acquired a reddish-yellow tinge, owing to the commencing solution of the globular substance." * * * "I will continue to bleed this animal from time to time ; but I can tell you beforehand, from the result of similar experiments, that the alteration in the properties of its blood, will entail that of its organs, and finally death. The lung, for example, will become affected with engorgement, œdema, pneumonia, and the entire train of what people are pleased to call inflammatory phenomena ; and, mark the extraordinary fact, that this inflammation will have been produced by the very agent which is daily used to combat it." *Magendie on the Blood, page 19.*

In regard to the elements of the blood, and the necessity of their due proportion to healthy circulation in the capillary vessels, the same author remarks :

"The absence of one of its normal constituents, is not perceptible by any untoward sign ; the sample before you appears perfectly identical with the blood that circulates in the living animal. Yet, notwithstanding this apparent similarity, its properties are different ; for, if I reintroduce it by a vein, it will at first pass through the large vessels, but on reaching the capillary system, its progress will be arrested ; the series of phenomena I have so often described will succeed, and the animal soon perish of the disorders induced by the stoppage of the capillary circulation. Now, nothing has been added to this blood ; I have simply removed from it one of its elements,—an element, too, that at the utmost, forms no more than from $\frac{1}{10000}$ to $\frac{2}{10000}$ of its volume. That element is *fibrin*, which, while in the vessels is liquid, but

when removed from them, becomes solid ; and hence, it is to its *fibrin the blood owes the extraordinary property it possesses, of passing through the capillary system.*

“But this is not the only important fact affecting the fibrin ; indeed, were we to take this alone into account, we should fall into a very serious error. Let us suppose an animal whose blood contains fibrin, as well as all its other constituent parts, in the normal proportions. If I inject into the veins of such an animal any substance possessing the property of combining chemically, of forming salts with the fibrin, such as fibrinate of soda, potassa, or ammonia, that fibrin will lose its coagulability. The change in the character of the fibrin affects the blood generally ; it ceases to be coagulable, and the usual consequence ensues. You perceive, therefore, that the blood may contain its just proportion of fibrin, and yet be unfit for circulation.

“Observe, I beg you, gentlemen, the fundamental point in the theory of the blood, deducible from the facts just described,—it is, that in order to support life it must be coagulable ; if it loses that property, existence is threatened, and ceases within a short while ; and this is precisely what occurs in the greater number of destructive epidemics. They are specially connected with certain modified conditions of the blood, that cause it to stagnate in the pulmonary vessels. Such was the state of things in the epidemic—the ‘*grippe*’—by which we were lately visited.”

In addition to the effect that inflammation has been shown to produce on the blood, it may be remarked, that its influence is no less manifest on organs remotely situated, and having no direct relation to the primary seat of the difficulty. Thus, gastro-intestinal disorders in children, have a remarkable tendency to develop inflammation of the brain, and all the serious consequences attendant upon it in such cases. Also, inflammation of the kidneys is usually followed by more or less disturbance of the stomach, and so on. I might enumerate a great variety of instances in which organs of the body, having apparently very little connection with each other in health, have an intimate relation developed during disease, through the influence of what is termed *sympathy*. This is an influence of very great importance, and not to be lost sight of, in the treatment of any disease ; for

it is to this influence we are often to look for the beneficial effects derived from therapeutic agents, and to it, also, we must refer many important symptoms in the progress of disease.

So important is the influence of sympathy, and so potent in the propagation of disease, that in overlooking it, we would often fail to perceive the only hope that could possibly attach to a case. Instances of the kind are of almost every day occurrence. A very marked case of this kind occurred not long since in my own practice ; in which all the general symptoms of rapid consumption followed what was thought to be a cold, after confinement. Hectic fever ; night sweats ; rapid emaciation ; an uncontrollable cough, with an expectoration that had all the *general appearances* of pus ; oppressed respiration ; frequent pulse ; and burning in the feet and hands, were the manifestations. The physical phenomena, however, showed at once that these general symptoms bore no proper relation to serious pulmonary disease ; and upon further examination, an extensive irritation in the roots of the spinal nerves was found to exist, and believed to be sufficient to account for the train of morbid phenomena just described. It should be remarked, also, that before the physical exploration was made, the symptoms were so remarkably persistent and obstinate, as not to be amenable to medication. But when the source of the difficulty was discovered, and appliances adapted to the removal of the real disorder were employed, the symptoms yielded with great promptness, and perfect relief followed.

The influence of local inflammation in the production of general febrile action, is so well known, and will be so often a subject of consideration, when we shall speak of particular affections, that it is unnecessary to dwell upon it at this time. A few words, however, in relation to the immediate cause of this sympathetic fever, may not be out of place in this connection.

In using the term *sympathetic fever*, I do not now include those febrile phenomena which result from malarial and other similar causes ; although, in one sense, all febrile action might be considered sympathetic ; but I apply the term only to such general febrile symptoms as result from some appreciable local lesion.

Whether the immediate causes of those febrile symptoms associated with the local phenomena of inflammation, are referable to

derangement of the blood, resulting from preëxisting irregularities, hereditary tendencies, or accidental and unavoidable circumstances; or, whether it is at first produced by derangement of the nervous functions, from causes not apparent; are questions which cannot be very readily nor satisfactorily determined, in the present state of our knowledge. The controlling influence of the nervous system in the phenomena of animal life, and also in the production of morbid action, is fully recognized, and seems to distinguish it as the guardian of the citadel, and subject, almost necessarily, to receive the first morbid impressions. But since the very first sensible manifestations of sympathetic fever are observed in the secretions, denoting an effort of nature to throw morbid elements out of the system; and since the source of such unhealthy materials can be the blood alone; it seems equally evident, that derangement of this fluid, if not the primary difficulty, is at least an early associate of the first phenomena of sympathetic disease.

The progress and complications of these febrile symptoms will depend, as a matter of course, on the character, extent and state of the local disease; developing different combinations at different stages of the primary affection; which will be discussed, when we come to speak of disease of the particular organs.

I will, in the next place, call your attention to the *minute changes* which characterize inflammatory action, as ascertained by the microscope. Many careful observations, and critical and extensive experiments, have been made in this department of pathological research, with a view of detecting the changes which occur, and the peculiarities of condition which exist in the minute vessels and tissues, during the inflammatory process. To this subject I bespeak your most careful attention, for upon the nature of inflammation as thus determined, and upon the effects which the loss of blood produces on the circulation of that fluid in the vessels, we predicate the philosophy of correct treatment in active inflammatory disease. These changes and peculiarities, too minute to be detected by unassisted vision, have been brought to view by the powers of the microscope; and the observations made with this instrument are so various and extensive, and have been so often reiterated, under a great variety of circumstances,

both upon the lower animals, and upon the human system, that there appears to be here no longer any room for doubt or uncertainty in regard to the truth. I shall not, however, attempt to give you in detail all the experiments, observations and minute facts, which have been recorded by those who have been prosecuting such researches, but in a summary manner state those results in regard to which there is a general coincidence in the experiments made by different individuals.

First, then, all experiments prove that the earliest observable changes which take place in parts exposed to a cause of inflammation, are always essentially the same, whether that cause be local or general; whether it be from constitutional influences, or extraneous irritants; and whether the irritation be produced by mechanical violence or chemical action. The first observable change in a part thus exposed, is a contraction of the capillary vessels, or a diminution of their calibre, which must of course be attended by increased activity of the circulation in them; for the channels being made smaller, the current must be more rapid. This, it may be observed, is the mere initiatory stage, and does not denote the actual existence of inflammation, but as it were, a process preparatory to the development of positive inflammatory action. Should the morbid excitement be arrested without progressing further, the affection could not be called inflammation, but merely irritation,—although this stage is an indispensable step in the inflammatory process.

This constricted state of the vessels is followed by a relaxed condition. They now begin to enlarge and become extended in a sensible degree, while the movement of the blood in them becomes slower. These phenomena denote the development of positive inflammation, and in exact ratio with the increase and intensity of the inflammatory symptoms are the relaxation of the vessels and retardation of the circulation, even to the effect of entire stagnation. At the very centre of the inflammatory action, a complete cessation of the circulation occurs, which causes the part to assume the pointed or conical form. Often during this stage there is observed a retrograde motion in the circulating current. Whether this results from the obstruction at a certain point, damming up the vessels; or whether it is caused by effusion from the vessels,

tending to produce a vacuum, and thus inducing a backward flow of the blood to refill the vessels ; or whether it results from chemical changes in the blood, producing such new affinities as to cause the blood to flow back under the influence of attraction upon its particles, is not fully determined ; but such are the perceptible facts ; there is a manifest oscillatory motion in the capillary circulation of the part involved, during this stage of inflammatory action. Nor are these peculiarities of movement the only changes observed in the blood. The red globules which hold so important a relation in all healthy action, lose some of their peculiarities of form, and exhibit a tendency to coalesce, often as it were running together, forming masses of globules, which evidently tend to interrupt the circulation. This is, no doubt, attended by great modification in the vitality of this important element of the blood. If, however, the inflammatory process be here arrested, either by efforts of nature alone, or assisted by proper treatment, so that this condition is not permitted to continue long, the globules seem to possess the capacity of resuming their vitality and individual identity, even where the latter appeared to be entirely lost. It has been supposed by some that they possess a kind of individual life, and that each little molecule has a kind of repelling force with which to resist morbid influences, and that when, in their individual capacity, this power is insufficient for the purpose, they arrange themselves in platoons or armies for the purpose of increasing their resisting force ; and that when the invasion is ended, their alliance is dissolved, and a disbanding of forces takes place. This may be called the refinement of theory, yet it is worthy of serious consideration.

Simultaneously with the occurrence of the changes just described, there occurs an effusion of lymph from the vessels into the cellular structure of the affected part. This exudes or passes out through the pores of the vessels, in a fluid condition, and afterwards becomes solidified by coagulation, and the absorption, probably, of the fluid portions. In this new substance, which has the organic structure characteristic of coagulated fibrin, there is soon observed a transmission of colored fluid, probably pure blood ; which, by virtue of its vitality, (a very unmeaning term, however, as I have before remarked,) or by the power of the blood-vessels,

or by the action of the heart, (which is felt throughout the system,) is forced into this coagulated matter, the particles of which, by some vital instinct, as I may call it, are attracted around the blood corpuscles and thus form an entirely new set of vessels. This extra accumulation of blood gives to the surrounding parts the great increase of redness so common in inflammation; and this color and the tumefaction produced by the formation of the structure, may remain long after the disappearance of active inflammatory symptoms, constituting a chronic inflammation, which may yield only to a long course of medication and the slow absorption of the superabundant organic structure. The process by which coagulating lymph is thus converted into organized living tissue, is what we mean by the term *adhesive inflammation*. It, of course, cements the structures where vitality remains, and, around the centre where the circulation has ceased and vitality is lost, it builds a barrier or wall, as if to resist the extension of death, while the increased vascularity of the part determines the circulation towards this devitalized centre, which at last is separated from the living structure, as a slough, or is dissolved in the serous effusion and purulent secretion, and thus prepared to be discharged.

Such, gentlemen, are the microscopic phenomena of inflammatory action. They are striking and peculiar as characteristic of this form of morbid action, and they are remarkable for their uniformity. True, the same effects are not always observed to follow the application of a stimulus, and the inflammatory action may be more promptly set up and more speedily terminated in one case than another; yet the minute changes which occur in the structures and circulation, are substantially the same in every tissue and under all circumstances, so far as the microscope can reveal them, whether they are observed in the web of a frog's foot, in the peritoneum of a dog, or in the lungs of a human being. The peculiarities of each inflammatory stage are always essentially the same in kind, however they may differ in extent or intensity.

As confirmatory of what I have said upon this subject, and as affording a more minute exposition of some of the microscopic phenomena than I can give you in any other form, I will here

read you a few extracts from eminent authors. The first is from Tweedie :

“Immediately after the application of a stimulus which is capable of exciting inflammation—especially if it be one which acts on a large surface, as alcohol applied to a membrane—a constricted state of the small vessels of the part, and an accelerated flow of blood through them has been distinctly seen by various observers ; but this state is of short duration, and during it the characteristic marks of inflammation are not perceived. After a time, varying from a few minutes to some hours from the first application of the exciting cause, the opposite change in the condition of the small blood vessels is observed ; they become enlarged and distended ; the movement in those most affected is slower than before ; there is often absolute stagnation for a time, and often oscillation, in different portions of them, and the globules of the blood which they contain are found to coalesce into irregular masses, in which their individual forms are no longer recognized. This is the condition of those parts in which the redness and swelling are the most intense. In the neighborhood the vessels are likewise enlarged, while the flow through them is more rapid than natural. Over the whole surface, and especially where the movement of the blood is retarded, many small vessels become obvious, which were not previously seen. This is, no doubt, chiefly owing to the reception of the globules of the blood into vessels previously admitting only its clear and colorless liquid ; but Kaltenbrunner and others have distinctly observed the formation of new vessels, by globules escaping from the vessels and making tracks for themselves in the surrounding textures. It does not appear that either acceleration or retardation of the flow of blood is essential to the state of inflammation ; and although the latter state is always predominant in the parts most severely affected, yet, partly in consequence of the accelerated flow in the neighboring vessels, and partly of the increased quantity of blood received, more than compensating for its slower progress through the most diseased parts, the whole quantity of blood returned by the veins from an inflamed part (as in the case of the hand) is found to be greater, and, when the inflammation is severe, to be three or four times greater than that

returned, within the same time, by the veins of the opposite sound organ.

“Within a time, which is likewise various, but often very short, from the beginning of these changes, the characteristic effusions of inflammation begin to show themselves, *chiefly, perhaps solely, in those parts where the flow of blood is retarded*: first, the surrounding textures are loaded with a serous fluid; but, gradually, changes take place in this fluid, which indicate that other constituents of the blood have exuded from the vessels; or part of the fluid effused assumes a gelatinous consistence, and forms flakes or layers, which gradually become solid. In the semi-fluid matter first effused, according to Gendrin and others, decolorizing globules of the blood may often be perceived; and in many cases globules of pus—known by their larger size and freer motion on one another, and, when observed in mass, by their yellow color, soon appear in this effused matter; and it assumes, more or less rapidly, and more or less generally, the form of purulent matter.

“When the inflammation occurs in serous or mucous membranes, the first effusions from the blood vessels go only to increase, and probably attenuate, the natural exudations from these surfaces; but as the inflammation advances, the fluid thrown out becomes always, as in other parts, of thicker consistence, as well as more copious than natural, and often more or less distinctly purulent.

“Along with the semi-fluid lymph effused in the earlier stage of inflammation, there is often extravasation of the coloring matter of the blood, and sometimes of entire blood; but most of the inflammatory exudation, in the cases to which we give the name of simple or healthy inflammation, soon acquires in most textures the appearance of the coagulable lymph or fibrin, such as constitutes the buffy coat of inflamed blood. In this effused coagulable lymph it is very generally observed that canals are gradually formed, into which some of the capillaries of the inflamed texture soon effuse blood; these canals are, in the first instance, of larger calibre than the vessels which supply them, but soon contract and assume the appearance of vessels (chiefly of veins, when the inflammation is of healthy character), in which the motion of the blood goes on as in the vessels of other

parts of the body, and by means of which this new texture of the body becomes liable to nutrition and absorption, like any of the preëxisting textures. It is thus that the permanent adhesion of inflamed surfaces, and the closing of wounds, whether by the first intention (as it is called) or by granulation, is effected ; and that inflammation within due limits, becomes the grand agent in repairing injuries attended with loss of substance.

“ On the other hand, the inflammatory effusions are always liable, in a greater or less degree, to the vital action of absorption ; which, although very beneficial, and indeed essential to the final disappearance of the disease, very often, in the more advanced stages, extends irregularly to the surrounding textures, and goes on to an extent which is not required for any useful purpose ; and it is in this way, chiefly, that inflammation becomes a cause of that irregular breach of substance in the solids of the body to which we give the name of ulceration.

“ Lastly, when the inflammation and consequent effusion have lasted some time in any texture, it often happens that the parts chiefly affected gradually lose their sensibility, change their color to gray, purple or black, become soft and flaccid, and ultimately putrid — their circulation gradually ceasing, and all their vital properties being extinguished. This is the termination in gangrene or mortification, often attended by suppuration and ulceration along the edges of the mortified part, which effects its separation from the living by the process called sloughing ; while in other cases (as in what has been called traumeter gangrene), no such process is established to limit the extension of the gangrene, and it is arrested only by the death of the patient.

“ These obvious changes are attended with less striking, but equally characteristic alterations, in the blood which passes through the inflamed parts. Not only do the globules coalesce into irregular masses, but much of their coloring matter separates from them (*Gendrin*) ; not only does the liquor sanguinis, or clear fluid of the blood, exude from the vessels, but it comes forth more loaded with fibrin than natural, so as to deposit much of it in the solid form, when at rest ; and this effused fibrin appears to have a peculiar firmness of aggregation, for when it exudes on the inner surface of blood vessels, where a current is going on,

although fluid in the first instance, it is not carried off by the stream, but “concretes upon, and furs over, the inside of the vessel.” (*Hunter.*) And not only does much of the effused fluid often gradually take the form of purulent matter, but the same change has been distinctly observed to take place on portions of the blood contained in the inflamed vessels themselves. (*Gendrin.*)

“These local changes are always observed to extend, more or less, from the point where they commence, before subsiding there. This extension takes place in a much greater degree in some varieties of inflammation (to be afterwards mentioned) than in others; but in all cases, two important observations may be made on the extension of inflammation: first, that it is more apt to take place along the texture where it originates, than to cross from one texture to another; and, second, that it usually takes place from the original point, as from a centre, in all directions, not following the course either of vessels or nerves, and often passing from one portion of a membrane (as the pleura or peritoneum) to another portion lying contiguous to it, although the vessels and nerves of this portion may arise from a distinct source.” * * *

The same author, after presenting his reasons for rejecting the theory that inflammation is the result of mere mechanical obstruction of the capillaries, remarks:

“It will be observed that these considerations are well founded, not on speculation, but on observed facts, at least equally well-ascertained, and equally guarded from fallacies, as any that can be observed in experiments on animals. To leave them out of view, in forming an opinion of the nature of inflammation, is to reject, not the aid of hypothesis, but the evidence of facts. We do not say that we explain these facts by saying that inflammation is a vital phenomenon, of which the explanation must be sought only in the laws of life; but we make the first step to the proper explanation, when we place the phenomenon in its proper class among the subjects of human knowledge; and from the facts now stated we infer, with perfect confidence that any mechanical explanation of the kind in question can only reach a part, and not the most characteristic part, of the phenomena of inflammation; and that, in this as in other instances, all attempts to resolve the most essential

changes which go on in the living body, into the laws of dead matter, can only tend to perpetuate false views in physiology, and to draw us off from the proper point of view, in which the actions of living bodies should be regarded."

In one of Palmer's notes to Hunter on the Blood, it is said: "When the web of a frog's foot, or the transparent mesentery of a warm blooded animal, is viewed in the field of a good microscope, and at the same time irritated, effects very different are observed to ensue in different cases; but in all instances where inflammation is well established the vessels are observed to be increased in number as well as size, and the course of the blood to be much retarded. The evidence upon this point is so universal, precise, and satisfactory, as to render any detail on the subject quite unnecessary. * * * It would appear, however, that there is a great difference between actual inflammation and that precedent state of erubescence which is excited by slight stimulants, or which bounds the outer circumference of an inflamed part, a difference which has not always been attended to, and which in many instances has led to mistakes on this subject. At first the effect of stimulation is generally to contract the small vessels and to accelerate the circulation; but as soon as inflammation is unequivocally established, the circulation is invariably retarded. In severe cases, indeed, the retardation amounts to a complete *stasis*, although in the surrounding parts the blood is observed to flow with more rapidity than usual."

That you may the more clearly perceive the difference between these abnormal peculiarities, and those which characterize the healthy capillary circulation, I will now quote from Magendie on this latter subject. He says:

"We will now leave the subject of the venous circulation, and pass to that of the capillary system; and the change is a satisfactory one; for our existing knowledge of the capillary circulation is much more complete and accurate than our acquaintance with the general circulation. In the large vessels, we can only judge of the state of the internal currents of blood by the appearance of their walls; according as the latter dilate, contract, become curved, straight, or elongated, we perceive that the former move with such and such velocity and energy; in fact it is by induction only

that we are enabled to analyze its phenomena of progression. The thickness of the vascular tunics prevents us from directly inspecting the globules of the blood,—an obstacle which does not interfere with their examination in the capillary vessels, as, by the help of the microscope, we are enabled to follow perfectly well the displacements and oscillations of the colored corpuscule floating in the serosity. The sole difficulty in this branch of the system consists in devising rational explanations for the phenomena observed. I constantly, as you are aware, brought the laws of hydrodynamics to bear, in explaining the circulation in the large trunks ; to the same laws I shall refer in our new investigation.

“The tenuity of the capillaries is, therefore, favorable, instead of being an obstacle to the examination of the course of the blood in their interior. Injection lends very feeble assistance in the study of the capillary circulation: it can, at the most, do no more than give some anatomical notion of the material arrangements of the vessels themselves. The blood is not the only fluid that moves in the beautiful rete formed by their interlacement ; there are certain organs and tissues into the capillary system of which that fluid does not appear to enter at all in the normal state ; but if you push an injection into the vessels, it will penetrate into the canals wherein fluids of another description usually circulate, quite as well as into those in which blood is ordinarily found. Thus, when the material injected is well fitted for the purpose, and cautiously introduced, the serous membranes will become covered with vascular arborisations. Now the vessels you descry on its surface, when thus injected, were not during life traversed by blood ; white fluids only were contained in them ; but as these hold no opaque granules in suspension, their mode of circulation cannot be accurately followed during life. The lymphatic capillaries have as transparent walls as the sanguineous, and yet what we know of the phenomena occurring in them is exceedingly limited. If you lay bare and examine a serous membrane, you can discover no circulation in the interstices of its tissue ; nevertheless, that tissue is principally formed of infinitely minute tubes. You cannot allege that there are no liquid currents in movement ; the rapidity with which substances deposited on its surface are absorbed, gives you the proof of the contrary. When this system

of white canals, in consequence of some morbid condition, comes into relation with the blood, a fluid hitherto unconnected with them, you may perceive myriads of vessels in the substance of the membrane. It is this change in the color of the circulating fluid that betrays its presence; so long as it remains diaphanous we are unable to study its course.

“I have already adverted slightly to the researches of M. Poiseuille respecting the capillary circulation. I have told you how that observer ascertained that the blood moves in the capillary vessels in the same manner as a liquid in an inert tube; in both cases a motionless stratum adheres to the inner surface by a sort of affinity. Its existence in vegetable tubes, also, has been established by the same experimentalist. Examine the course of the blood in a vessel spacious enough to allow of the passage of several globules abreast, and you will perceive that their velocity of movement is very great in the centre, and less so in the neighborhood of its walls, while in the stratum of serum they are nearly motionless. In the axis of the vessels the globules are only subjected to a movement of translation; in the neighborhood of the stratum, to one of translation and rotation. The latter is more and more marked, the nearer they are to the stratum of serum. The globules that happen to be dashed into it become motionless; those which merely touch it undergo a movement of rotation, as if they had jostled against an undulating surface. This stratum protects the vessels by means of its immobility, as it prevents the friction of the globules against their walls. It is only where it is in contact with the periphery of the vessel that it is perfectly at rest; the globules move with a progressively increasing velocity in proportion as they are close to the axis of the vessel. This difference of velocity and movement in the globules placed in the centre, or near the periphery of the vessel, does not exist in its lateral direction only. Those occupying its inferior part are slower in their progress than those situate at its upper end, as may be easily ascertained by examining comparatively those two parts.

“The irregularities occurring in the movements of the globules, are, therefore, to be ascribed to their relative position to the adhering layer. Thus let us suppose two globules advancing to-

gether with equal rapidity ; one of them, jostled by its companion, is driven towards the periphery, its movement slackens, and it remains behind ; the other continues on its way. Another jolt, from some other globule, restores the one remaining behind, to its former place, in the centre, and the moment this occurs it is borne away by the current and regains its previous velocity. In other cases a globule gets placed crosswise, so that both its extremities are immersed in the motionless stratum ; its movement is thus slackened ; others overtake it, press upon, and accumulate behind it ; the passage is intercepted, and a sort of dyke opposes the further advance of the globules. Shortly after the globule which has caused all this disorder moves from its anormal position, becomes longitudinal, resumes its motion, and at the same instant all the others reäcquire theirs. These agglomerations of globules very rarely occur in cases where the heart retains its full force, and the animal continues strong ; they are consequently, in general, observed only towards the close of an experiment. The existence of a motionless stratum, being a continually present and powerful cause of slackened movement in the globules, it is indispensably necessary for the force that moves the blood to have a certain degree of power in order to carry on the capillary circulation. By means of anastomotie communication all these minute canals are made vicarious of each other. When a mechanical obstacle is created in any point, the globules stagnate ; the resistance is out of proportion with the motor power, and the liquid remains at rest in its tubes. The central globules are not in the least influenced by the motionless peripheric stratum in the large vessels, in consequence of the distance separating them from it. In the capillary vessels, on the contrary, they are obliged to traverse a mass of serum, of which the central filament alone, if I may so speak, possesses any rapidity of motion. Haller, Spalanzani, and other physiologists, saw the globules advance, retreat and move in a variety of directions ; but these are not, as has been maintained, vital phenomena. The arrangement of the globules among each other, their relation to the motionless stratum of serosity, and other circumstances, give us the key to the comprehension of all those peculiarities.” * * * * *

“In investigating the capillary circulation in animals, the

microscope is always employed, and the animals on whom such examinations may be most effectually made, are frogs and salamanders, among batrachians; mice and small rats, among mammalia. The tail of some fishes, too, is, from the transparency of the integuments, well adapted for inspections of this kind. I shall extract the greater part of the facts I am about to lay before you from M. Poiseuille's 'Essay on the Capillary Circulation.' As this essay has not yet been printed, I shall quote some passages verbatim, commencing with the simplest phenomena.

“ ‘The experimentalist separates the femoral artery and vein from their connections with the surrounding tissues by delicate dissection, and then passes a ligature round the thigh, taking care to tighten it forcibly; the circulation of the part is now carried on solely by the two vessels named. The animal is pinned down to a plate of cork, so as to make the inter-digital spaces correspond to the object-glass of the microscope. When he has ascertained the degree of velocity of the globules, he intercepts the course of the blood in the artery, leaving the vein free. The globules still continue to move, but do so more slowly, and their movement gradually grows slower and slower, until at the end of two or three minutes, it ceases completely. When the compression is taken off, each globule which was in a complete state of rest, instantly starts off with the rapidity of an arrow, and recovers its normal velocity. Some physiologists on observing the persistence of the movement of the globules after the impulsion of the heart had been prevented from acting on them, were very naturally perhaps induced to recognize a sort of inherent progressive force in those bodies, which, they further supposed, directed them from the arteries towards the veins. Others conceived that the latter vessels exercised a kind of aspiration on the globules; both these notions are erroneous. The same phenomena to which I have already drawn your attention, as existing in the vascular trunks, occurs in the capillary vessels. The facts with which you are already well acquainted, show that the movement of the globules is to be explained by the elastic retraction of the arterial walls below the ligature. When the passage of the blood is intercepted in a large artery the vessel retracts abruptly—the diminution of its diameter takes place suddenly. In the capillary system, on the contrary, re-

traction is a slower process, and this difference in point of elasticity in the small and large tubes, explains why, in the experiment I have just described, the globules continue to move for several minutes after the application of the ligature.

“The mesentery of a frog is next separated from the animal and spread out on a piece of glass. A certain quantity of blood escapes from the opened vessels, and as those are no longer dilated by the column of blood impelled forward by the heart, they retract, and their retraction is so considerable, that the diameter of some veins and arteries decreases to half its original amount.’

“The flow of blood only ceases when the vessels have reached the utmost limit of elastic retraction; and the greater number do not undergo retraction throughout their entire extent; there are swollen points observed here and there. Now this irregularity in the retraction of the capillary walls depends on the manner in which the small quantity of blood remaining in each tube is distributed, and undergoes coagulation. Masses of globules accumulate in several points, and to each of these accumulations corresponds a swelling of the vessel: for the coats being arrested in their retraction by a physical obstacle, are unable to retract so fully as if the cavity were empty. The notion of the existence of different degrees in the retractile force of the capillaries is, therefore, an incorrect one; remove any clots they may contain from their interior, and the diminution in their calibre will be the same through their entire extent.

“One of the chief proofs adduced in support of the opinion that the globules are endowed with a faculty of spontaneous movement, is derived from the following experiment. It has been said that if, while you examine the circulation in a capillary vessel, you make a small hole in any point of its walls, the direction of the current within it is instantly modified. The whole column of blood, which a moment before obeyed one and the same impelling power, separates into two distinct columns; these, moving in contrary directions, rush towards the little orifice you have made and effect their escape through it. The action of the heart has ceased to be felt beyond the accidental opening,—the movement of the globules there situated cannot, therefore, be explained by that action; besides, their movement is a retrograde one. What other

cause, it is asked, but an act of their will, can cause these intelligent corpuscula to move in this novel direction? The fact, gentlemen, is unquestionably correct, and the inference drawn from it is, no doubt, specious enough; but a little reflection clearly shows it to be faulty. We know that the pressure exercised by the blood in the normal state on the walls of the arteries and veins, is superior to that of the atmosphere. Now this pressure is suddenly diminished at the point of section; to this point, consequently, a rush of blood must, in pursuance of the laws of the equilibrium of bodies, take place. Whatever be the existing direction of their course, it will now become that of the artificial opening; this movement of the globules is also promoted by the elastic retraction of the walls of the vessels, which press circularly on the blood, and, in the absence of the impelling influence of the ventricular, communicate a retrograde motion to it. I see no necessity for imagining hypotheses, when the physical explanation of the phenomenon is so easy and natural. But, further, if you distend a caoutchouc tube with an injection, and then make an opening in its central part, the contained liquid will rush thither from both ends of the tube. The case is the same as with the living vessel.

* * * * * * * *

“Hear another experiment, which proves in the clearest manner that the movement of the blood in the capillary vessels depends on the impulsion of the heart and the elastic retraction of the walls of the vessels. I extract it verbatim from M. Poiseuille’s manuscript: ‘The femoral vein, artery and nerve of a frog are accurately separated to the extent of two centimetres, at the least, from the surrounding tissues, and a ligature then passed round the thigh, excluding the vessels and nerve; a loose ligature, ready to be tightened at will, is thrown round the vein. A thread is next fixed to the extremity of each digit of the same limb, to facilitate the examination of the circulation in the interdigital spaces without modifying it by pricking the tissues. The frog being pinned down to a flat piece of cork, and the web laid under the object-glass of the microscope, the ligature embracing the bone and muscles of the thigh is forcibly tightened. The experimenter is then certain that the circulation in the lower part of the limb is carried on by the dissected vessels alone. The circulation

in the arteries, veins and capillaries, goes forward in the same manner as before the performance of the operation described ; jerking movements sometimes take place. The globules move more rapidly in the arteries than in the veins ; and in the capillaries their velocity is less than in the other two orders of vessels ; in some, however, it is greater than others, for reasons to which we need not at present direct our attention. The observer now watches with especial care an artery and vein of the interdigital space submitted to investigation : he then interrupts the course of the blood in the femoral vein ; the moment he does so the progression of the globules in the vessels of the digital interspace under examination becomes jerking, and this jerking mode of progression lasts a few seconds only, being followed by an oscillatory movement. The span of these oscillations at first equals the length of five globules, and soon decreases to that of two ; the rhythm is identically the same in the artery and capillaries of the interdigital space, and they continue, to the number of forty-six in a minute, so long as the compression of the vein is kept up. While the femoral vein still undergoes compression, the experiment is varied by interrupting the course of the blood in the artery also ; the oscillatory motion ceases at the same instant. The globules become quiescent in the artery, the capillaries, and vein of the extremity. If the femoral artery be then freed from constriction, oscillations of equal length, in the three orders of vessels, recommence. These experiments concluded, the heart of the animal is laid bare, and the number of contractions of the ventricles counted ; these are found to be one hundred and eighty-six in four minutes, or forty-six in a minute.'"

LECTURE XIX.

INFLAMMATION—CONTINUED.

Effects of Blood-letting—Magendie's Character and Researches—Quotations from him—Bleeding increases Serum—Various Experiments—Excess of Serum embarrasses Capillary Circulation—Promotes Inflammation—Quotation from Magendie—His change of views—Bleeding predisposes to Inflammation—Quotation from Hunter—Tweedie—Review of his Doctrines—Results of Bloodless Practice.

Having presented you with a general description of inflammation, as developed in its sensible phenomena; and having furnished you with the very best and most reliable information of which our profession is in possession, in regard to the minute changes which occur in the capillary vessels and in the blood, during the inflammatory process; and having produced, also, in this relation, such experiments as seem best adapted, from the authority of the experimenters, and from the simplicity and conclusiveness of the experiments themselves, to give you a correct idea of the mechanism and movements of the capillary system in a state of health, I believe you are fully prepared to pass with me to an examination of the effects of blood-letting on the constituency of the blood, and on its circulation in the capillary system. As we are now ready to enter into an inquiry as to the most philosophical and truly scientific mode of treating inflammation, it seems unavoidable that we first dispose of that therapeutic agent upon which so much reliance has been placed for years, by prominent men in the profession. And I hope to be able, before the close of the present lecture, to convince you that, in

rejecting the lancet as a means of treating inflammatory disease, we are sustained both by physiological facts and practical experience.

In pursuing our inquiries on this subject, your attention will be directed to the laws which appear to govern the constituent elements of the blood, and its circulation, as influenced by the abstraction of blood ; as well as to the special effects of venesection upon parts involved in the inflammatory process. And as I do not desire to deal in mere denunciations, nor yet set up my own *ipse dixit* as authority in this connection, I shall, as heretofore, make free use of such authors as are recognized by the whole profession, and whose interesting researches have been placed upon record, as a general fund upon which all inquirers after truth may draw, to sustain their investigations ; and although a vast amount of hypothetical reasoning, and professional abstractions, clothed in imposing verbiage, have almost converted our medical libraries into heaps of rubbish, with only an occasional truth to repay our labors,—yet it is our privilege to isolate those facts which constitute the real essence of medical knowledge, and bring them to bear upon the subject before us.

Perhaps no man ever lived that manifested a more disinterested, deliberate, yet earnest desire to arrive at truth in his investigations and experiments, than Magendie ; and certainly no man stands more deservedly prominent in the ranks of medical authority, as a bold, successful and accurate experimentalist in physiological and pathological science. Occupying important positions, first, as physician to an important institution in France, and, secondly, as teacher of the principles and science of medicine to a large number of pupils, it behooved him to be exceedingly careful in regard to the principles which governed his practice, and the doctrines he taught : and you will find in all his writings, those disinterested, cool, careful and deliberative characteristics, found in but few authors. You will find him most remarkable in one thing, especially ; that is, where he has expressed an opinion which he subsequently perceives to be wrong, he yields at once, acknowledges his error in the most frank and candid manner, and makes the most of the truth by which his former views have been subverted. Unfortunately for the good of humanity, and the

advancement of medical science, this virtue has been too deficient in most of the profession.

The extracts which I shall now read, from Magendie in particular, are intended to demonstrate the influence of venesection on the constituent elements of the blood. And first, let me recall your attention to some of the extracts I read to you yesterday, establishing the fact that the due proportion of all the elements of the blood is indispensable to free and healthy circulation in the capillaries; and especially, that to the presence of "fibrin, the blood owes the extraordinary property it possesses, of passing through the capillary system." You will remember, also, the experiment of the same author, in which, by three successive bleedings, he modified the blood of a dog to such an extent, that the clot was reduced from four-fifths to less than two-thirds the entire mass of the blood; and that the fluid portion was changed to reddish-yellow, "owing to the commencing solution of the globular substance." And you will please remember the assertion of this candid and earnest experimentalist, in view of these results, "that BLOOD-LETTING induces, both in the blood itself, and in our tissues, certain modifications and pathological phenomena, which resemble, to a certain extent, those developed in animals deprived of atmospheric oxygen, of drink and solid food."

There are other passages, by the same author, which might have been quoted with propriety under another head, but as this was not done I introduce them here. They throw still additional light upon the topics we have been discussing, while they illuminate the ground we are about to explore.

"There is a fact in physics, remarkable for the excellent term of comparison which it serves to establish between the phenomena of the movement of the blood in our organs and the circulation of liquids in inert tubes. I allude to the enormous pressure which is required in order to make water pass through a tube of very small diameter, while the blood traverses with ease the infinitely more minute tubes that abound in our tissues. There must be some particular conditions to facilitate its passage. What proves their existence is, that if certain alterations are effected in the composition of the blood, it stops, undergoes morbid changes, becomes extravasated and decomposed, and produces the various

disorders which pathologists have vainly attempted to explain by the words *inflammation* and *irritation*. What sense, in truth, is there in applying the words inflammation to our organs? Do our tissues really take fire? I confess I know of no example of such a phenomenon. When the blood rushes to a part in abundance, a certain rise of temperature, no doubt, occasionally follows; but it only reaches a few degrees above the normal standard of the organ, and never exceeds that of the blood in the left ventricle. To cause a real inflammation, the elevation of heat should be carried infinitely higher; besides, in many cases also called inflammatory, there is a notable fall of temperature."

Further on he says:

"But to return. We ascertained that the first condition for the accomplishment of the circulation, was that the blood should have the property of forming into a mass when removed from its vessels and left to itself. This is the fundamental fact to which the majority of those we shall subsequently become acquainted with will be found referable. Meanwhile we will endeavor to discover the physiological or chemical circumstances, and the particular substances that influence that phenomenon."

He then relates an experiment made by him, by the injection of a drachm of œnanthic æther mixed with an equal quantity of distilled water into the veins of a dog, producing death in three quarters of an hour, evidently from liquefaction of the blood, yet attended with the autopsic appearances of gastro-enteritis; and adds:

"As the sudden introduction of a little œnanthic æther into the veins of an animal destroys the coagulability of its blood, it is by no means impossible but that the prolonged abuse of wine may, in the end, entail similar modifications in the physical properties of that fluid. Much has been written on drunkenness, its effects, and the disorders it induces in the organic functions. The pathological anatomist has examined every organ in its turn, in search of the peccant principle, but in vain; in spite of all that has been done, conjectures are all that we have got. Delirium tremens has been attributed to inflammation of the brain, of the cerebellum, of the meninges; but not a word has been said of the condition of the fluids. It will be my aim to investigate these different points thoroughly; they are of the last importance, for it is by examin-

ing the condition of the blood that we have learned the mechanism of the production of several of those terrible diseases that decimate the human species. Thus we have been enabled to explain the black vomiting of the yellow fever that devastates the shores of America.” * * * *

“ Continuing our scrutiny into the properties of the blood, we soon discover another of its special characters. This is a peculiar viscousness. Now on first thought, this would seem an obstacle to its passage through the ultimate tubes, but it is in reality an indispensable condition to its free circulation ; to such a degree indeed is this true, that viscousness and the normal state of the blood are two inseparable ideas. This property, again, is illustrated by experiments made on inorganic tubes. If we endeavor to introduce water into a tube of extremely small diameter, that liquid, as I have already mentioned, will not enter it, no matter what force be employed ; but if a certain quantity of any mucilaginous substance, such as gum, gelatin, or albumen, be added to it, the attempt at injection becomes successful immediately. ” * *

“ Now here is the blood of an individual who had an attack of hemoptysis, and was bled freely for it. You know well what I think of that remedy,—*worse, perhaps, than the disease*. Be that as it will, you may perceive that this blood is very slightly viscous ; I, in consequence, presume that further mischief will occur. We shall see if my presumptions are realized. We have no instruments to measure the viscosity of fluids ; we are, therefore, instead of having an accurate and rigorous estimate of that of the blood, reduced to simple conjectures. I consider that the discovery of any method of measuring it with exactness would be a most valuable acquisition. Meantime we will do what we can to determine it with the areometer. There is further proof that a certain share of viscosity is an essential requisite for the healthy circulation of the blood. If you bleed an animal several times, and replace the blood withdrawn with water, exhalation and effusion into the cavity of the pleura will follow, and subsequently into the peritoneum. Now you have done no more than diminish the viscosity of the blood, by adding a little water to it. But on the other hand, if you try the converse experiment, and augment its viscosity beyond its natural term, the circulation ceases altogether,

in consequence of the affinity between the molecules of the blood being rendered too great. The molecules adhere to the walls of the vessels, and impede the circulation, just as blocks of ice, stuck to the banks of canals, or rivers, interrupt the course of their streams. Hence, there must be diseases originating in excessive viscousness of the blood.” * * * *

“ But there are important facts of another order, totally, to be learned respecting the blood. When we examine that fluid while yet circulating in the living animal, we are immediately struck with its heterogeneous appearance. It is seen to hold myriads of little particles in suspension, rolling on each other, and intermingling in a multitude of ways. These particles, called globules, are known to have determinate dimensions, and to affect particular forms, according to the class of animals in which they are observed. They are elliptical in fishes, reptiles and birds; in mammalia they have the appearance of a circular lens. These globules deserve our close attention; for, when they undergo certain changes, they are unfitted for circulation in their tubes. However, it must be remarked, that, of all the elements of the blood, they undergo the fewest modifications in disease.” * * *

“ Their mean ordinary diameter varies from the eightieth to the one hundred and twentieth part of a millimetre. There are some considerably smaller, but in all probability they are of a different species from those of which we have been speaking; to ascertain this for certain, however, would be a very interesting as well as novel topic for inquiry.

“ If we turn from these purely physiological questions to the chemical history of the blood, we shall find in it many points quite as interesting as those we have rapidly reviewed. The difficulties encountered in the prosecution of that branch of inquiry, are not less serious than those met with in investigating its physical properties. However, it is easy to establish one important fact, namely, that every anormal chemical modification of the blood is followed by morbid phenomena, of just as great gravity as those which have already afforded us subject for discussion.” * *

“ Among other practical points of importance to which these general views have led us, we have ascertained that *venesection modifies the relative proportion of the serum and clot*. Here is

the product of the fourth and fifth bleedings which were practiced on the animal I showed you the other day. In the fourth, the serum is to the clot as 55:45 ; in the fifth, as 65:35. Now this is surely a very great difference ; yet in this case the various abstractions of blood took place at intervals of two days, and the animal was fed well all the while, which prevents any very rapid alteration of the blood ; and not only is the clot modified, but the serum also becomes whitish, and is pretty often found covered with a layer of opaline matter.

“ In fine, the nature of the blood, and of its different elements, is an important question in a therapeutical point of view. We can now maintain, with confidence, *that it is not a matter of indifference whether we bleed little or much* ; whether we draw a small or large quantity of blood, in a very short space of time, or at distant intervals ; whether we push the abstraction to syncope, as has been advised by many writers, or repeat it to a smaller extent, at several different times, with a variable interval of time between them, as learned practitioners of the present day recommend. We are also justified in proclaiming, that men who bleed without giving themselves the least uneasiness about the disorders that follow the removal of blood, both in that fluid itself, and as their consequence, in the various organs ; who look on these disorders as curable by blood-letting, while they are, in reality, produced by it, act with most reprehensible blindness. In simple language, they do mischief where they imagine they are doing good ; and in many an instance, on their doing that mischief or that good, the death or recovery of their patient depends.”

Having introduced the foregoing quotations from Magendie, in addition to those read in the last lecture, for the purpose of establishing in your mind clear ideas of the properties in the blood indispensable to its free circulation in the capillaries, the quotations which follow will tend mainly to exhibit the tendency of venesection to change the character and destroy the equilibrium of the blood, so as to render it unfit for capillary circulation. In fact, the quotations already made do not leave this point doubtful, but, as more direct testimony is at hand, I will introduce a portion of it, before stating my own views in regard to the proper treatment of inflammation.

Speaking of the results of bleeding an animal which he exhibited to his class, Magendie says : “ His blood contains as much serum as clot. Here is the product of the seventh venesection practised on the animal, about which I have already more than once spoken. Although he eats and drinks as much as he likes, his health is materially affected, a notable change has taken place in his gait, habitudes and temper. *The mucous membranes have grown singularly pale* — a peculiarity which has been long noted by veterinary practitioners in appreciating morbid symptoms. When he is bled now, syncope follows. I have no doubt but that an affection of the lungs will soon come on, and speedily put an end to his existence.”

Again, the same author, in a subsequent lecture, says : “ I stated to you that repeated blood-letting caused a variation in the proportions of serum and clot ; but I have ascertained a still more important fact. It is this : in every case of serious disease I have met with since commencing the researches with which we are at present engaged, those two elements have invariably presented some anomaly, in respect of their relative volume.” He then introduces cases in illustration and confirmation of this point, and adds :

“ A medical practitioner gave me some of the blood, drawn on three successive occasions from a patient affected with pneumonia. Each of the bleedings was abundant. The two first were practised on the day of the patient’s admission ; the last on the fourth day of his sojourn at the hospital.

“ In the first there are 11 grammes of serosity and 50 of clot, which gives about 22 parts of serosity in 100. In the second, there are 24 grammes of serum to the same proportion of coagulum ; the relative quantity of serosity was, therefore, more than doubled. Finally, the third gives 34 of serum to 35 of clot ; that is, 50 *per cent.* of the former. These augmentations of serum, induced by bleeding, ought surely to have struck practitioners. I have full room for astonishment at their having excited so little attention, for it is a regular practice to have the blood of patients set aside for examination. At the end of twenty-four hours, usually, this examination is made. The clot is felt, turned up and down, and fingered in every direction ; and all with a view to the

discovery of an appearance of *buff*. If this *buff* cannot be found, the conclusion is, that the disease is not inflammatory, a conclusion well worthy of the process by which it is obtained. But if you intimate to the physician that the serum has, at the second bleeding, acquired double its previous proportional quantity, and that it has lost its normal transparence, and that the clot is soft and diffuent, he will answer, that such things are not of the most trifling consequence. No, the really important point is, to detect the inflammatory element, were it only the veriest morsel of it, and then to annihilate it by the antiphlogistic treatment. Such is the manner in which medicine is generally practised. When we consider, gentlemen, that in spite of the plainest and most forcible facts, the majority of medical men persist in blindly following a regular routine that brings discredit on the art, we are surely justified in applying to them these words, which, in more than one view, recapitulate the history of men,—*they have eyes, that they may not see.*”

“A superabundance of serum in the blood is, in my mind, a positive contra-indication to blood-letting; and I conceive that this fact will sooner or later be admitted as a fundamental position in the treatment of disease. It is fully established, that inopportune bleeding may singularly aggravate the condition of a patient, and even render his restoration to health a positive impossibility.”

And yet a superabundance of serum is by no means inconsistent with the existence of the most aggravated forms of inflammation—may, indeed, be the cause of such inflammation. How then shall inflammation be arrested by the lancet, which uniformly increases the serosity of the blood? In a single instance Magendie found himself mistaken in anticipating the effect of veterinary depletion. He attempted to ascertain what proportion of serum to the clot is essential to vitality. To hasten the experiment, he drew blood from an animal, and replaced it by injecting into the vein an equal quantity of distilled water at the temperature of the blood. The result was a diminution of serum. Speaking of this circumstance, after remarking that one well observed fact cannot overturn another, he says:

“Under circumstances like these, we should confine ourselves to registering the seemingly contradictory facts, and waiting

patiently until further observation enabled us to get rid of the difficulty. This is what we will now do; we will note down, that *repeated venesection increased the quantity of serum in a patient*, while the same agency appears to have had the contrary effect on this dog. However, it is right to mention, that the circumstances are not precisely the same in both cases. In the instance of the animal, there is, in the first place, a certain amount of forces in the organism, which tend to keep the blood within certain limits of composition. There is also a direct and most efficient cause why the introduction of water into the veins should not contribute to increase the quantity of serum in the blood; it is that, as my assistant this moment informs me, the animal has an abundant miction after each injection.

“ You are aware, gentlemen, with what rapidity fluids, ingested into the stomach, are carried by the veins of that organ into the general circulation, and thence to the kidneys, which they stimulate to secretion. Thus, when we drink beer, seltzer water, or champagne, we are almost immediately seized with a desire to void our urine. There can be no doubt, that, if we could retain these liquids longer in the circulation, a bleeding practiced before this expulsion, would discover evidence of their presence in the blood; but as they give an extraordinary degree of activity to the urinary secretion, they are quickly removed from the body. To continue our parallel: when a patient is bled, he is put on a very low diet; the animal on which our experiment was made, has, on the contrary, been given abundance of nutritious food, and, therefore, provided with the means of repairing the losses of his blood. A patient treated on the antiphlogistic plan, is placed in a diametrically opposite condition; his blood is taken from him, and he is, at the same time, deprived of all nourishment; he has nothing wherewith to make up for the lost blood but ptisans, of which, to speak a truth, he is allowed no niggard supply. But as the restoration of the mass of the blood is indispensable, the lost elements must be got, as best they can, from these same ptisans; hence, without doubt, comes the increase of serosity. Still it would be an interesting point, to learn the means and mechanism by which an animal is, in a case like the present, enabled to maintain the component parts of his blood in their normal proportions.

“ In spite of anything that may seem to indicate the contrary, it is perfectly true that any signal disproportion between the serum and clot, renders the blood unfit for the performance of its functions. A very curious case, supporting this doctrine, has been recently observed in my wards, in the Hotel Dieu. A female was, some time past, admitted under my care, with most violent uterine hemorrhage, which had existed for two days at the time of her admission. This was the consequence of an artificial miscarriage, induced by the use of those powerful drugs which certain women, whose moral turpitude is even greater than that of the unfortunate beings employing them, make a trade of vending. As I have since learned, it was not her first attempt in this way ; she had already succeeded twice or thrice in producing abortion. Such practices would be less frequently had recourse to, if their terrible consequences were better known. I may here say, that death is often the most desirable issue in such cases, for it puts an end to most atrocious suffering. In other instances, incurable mental alienation, or abdominal neuralgia, that no remedy can soothe, follows. Various cases of this kind have lately come before me, and I distinctly ascertained that serious disorders of the brain were the occasional consequences of these criminal practices.

“ In the example to which I more particularly advert, there was, as I said, hemorrhage from the uterus. The general pallor of the subject was very remarkable, as well as the state of prostration and stupor under which she labored. Her blood trickled away in diffuent clots of a peculiar odor; it was this indeed which turned my thoughts to the probability of a premature delivery having taken place ; this, however, the patient employed all her remaining strength in pertinaciously denying. I had two ounces of blood taken from her ; not on homœopathic principles, but to enable me to prognosticate the probable issue of the affection. Here is the blood, the disproportion of its elements is frightful ; there is only 15 per cent. of coagulum. I affirm, that with such a quantity of serum in the blood, the capillary circulation cannot be regularly accomplished.” * * * * “ At the end of forty-eight hours, during which every drug supposed to possess antihemorrhagic virtues was employed, among the rest *secale cornutum*, *peritonitis supervened*. You know that by this term is understood a

disordered state of the secretion and exhalation of the serous membrane of the abdominal cavity. You find, after death, a viscous liquid, in the midst of which flocculi of albumen are seen to float, &c."

"Now, can you fancy that the attack of peritonitis was the result of excitation, or irritation, suffered by the patient? She was, on the contrary, perfectly anemic, and in the most marked state of weakness, and peritonitis is so acute a disease, that it carried her off in less than four and twenty hours. Is no relation to be recognized between the liquidity and slight coagulability of the blood and the affection of the peritoneum? But this is not all; if we turn from the abdomen to the lung, there, too, we find a state of engorgement, in other words, serosity effused; in short, lesions perfectly analogous to those detected in the lung of the animal submitted to repeated blood-letting. I may, therefore, legitimately conjecture, that these diseases are to be referred to particular conditions of the blood. In peritonitis I find an effusion of serosity, and I know that there is serosity in the blood also. I also discover a substance solidified in the form of very thin lamellæ; may I not suppose that this is the fibrin of the blood escaped from its vessels and become organized?"

In a subsequent lecture, Magendie further discourses on this subject as follows:

"The point in the history of the blood about which we are at present more immediately interested, is the effects induced in the economy by variations in the relative quantity of the serum. If we could succeed in determining, even in an approximate manner, the influence of those changes on disease, and on temperament, we might assuredly lay claim to the honor of having done some service to pathology. But, gentlemen, this question is not one of those that may be solved in a single lecture, nor in two, nor in three; it requires to be examined in various points of view, and calls for the evidence of facts of an accuracy that none can gainsay. When we shall have studied this branch of our subject, we will turn to the chemical composition of the serum and clot, which, it cannot be denied, still requires minute investigation, although it has already been laboriously studied. We have hitherto done no more than receive specimens of blood

into vases, examine them and the changes they undergo therein, compare as well as we could the proportions of their liquid and solid constituents, and inquire if the phenomena of life can continue to be accomplished with such and such quantities of serum and clot. You have already seen, by the serious modifications induced in the state of the economy by certain diversities in their proportions, that we are not without plausible motives for investing this question with the importance we have done. Let me recall to your minds the case of uterine hemorrhage of which I spoke to you in my last lecture, following abortion produced by criminal practices. You cannot have forgotten the consecutive symptoms, such as the intense peritonitis which supervened at the end of two days, accompanied with most violent pains and embarrassment of the respiratory system, and which terminated by death in less than twenty-four hours. This case is worthy of close consideration; for, setting aside the signs proper to that fatal affection, we may ask, what is peritonitis? what are its mode of origin and first cause? In general, the answer is, that it is an inflammation of the peritoneum: that the mode of vitality of that membrane is changed by irritation; that this irritation accumulates the blood in the capillary vessels, which were previously impermeable by it, and that both an increase and a modification of the materials of exhalation are consequently produced. When these different suppositions, and a variety of others, have been more or less carefully enumerated, it is presumed that all has been said; nevertheless, the real question has not been so much as glanced at. For my own part, though I admire the ingenuity of those pathologists who have made peritonitis one of the inflammations *per eminentiam*, I cannot quite accede to the correctness of their opinion. We found in the blood of the woman to whose case I now especially refer, a most remarkable proportion between the serum and clot; there were 85 parts of serosity to 15 of coagulum. This single fact was in itself enough to suggest to our minds a very different explanation of the disorders under which she succumbed, from that afforded by the doctrine of inflammation; and we had no difficulty in establishing the existence of certain relations between this occurrence and the phenomena daily observed in our experiments. Among

other things, you saw that there was a most striking resemblance between the lesions of the lungs in our patient, and those occurring in the pulmonary organs of the animal submitted to a series of successive bleedings. But I must avail myself of the present opportunity to point you out a physical phenomenon long mistaken by medical men for a pathological change. In consequence of the greater or less liquidity and diminished consistence of the blood in certain cases, it becomes infiltrated from the capillary vessels in the pulmonary cells, accumulates therein, and constitutes the effusions known under the name of *hypostatic pneumonia*, which is in truth a simple effect of gravitation."

From what has now been quoted no room is left for doubt, that fibrin is an element, the presence of which facilitates the capillary circulation, and that its appearance in inflammatory affections is merely evidence that the system is employing the proper means to overcome obstruction and repair injury. It is equally well established by the quotations read, that an undue amount of serum in the blood is inconsistent with free circulation, and tends to produce or at least aggravate inflammatory action. The authorities quoted also show, what all the profession admit, that the loss of blood diminishes the relative amount of fibrin. Indeed, under the idea that fibrin is the inflammatory element, the practice of blood-letting finds almost its only justification. But the readings to which you have just listened establish still another fact, which, too, cannot be questioned by any advocate of the lancet, and that is, that the use of that instrument tends directly to increase the serum at the expense of the clot; or, in other words, to produce such a disproportion between these two elements as to most surely embarrass the circulation; and when carried to a certain extent, to render the blood incapable of forming a consistent coagulum.

From all the evidence before us our only decision must be, that blood-letting is not only incapable of arresting inflammation, but that it tends to promote it by embarrassing the circulation. As a still further confirmation of this opinion, and as bearing especially on the practice, which has been extensively prevalent in the profession, of providing against apprehended inflammation, in cases

of injury, or where capital operations are necessary, I shall read one more passage from Magendie. He says :

“ These reflections on the serum remind me that when I commenced my medical career, imbued with the prejudices of the schools, and just such a novice as men usually are when they give up attending lectures ; when, too, like my brethren, I paid my tribute to scholastic dogmatism ; that is, I believed in inflammation, irritation, and the rest of it, as in so many articles of faith ; they remind me, I say, that even at that early period, these questions excited my attention. You shall hear how I was led to their consideration. It was, at the time I allude to, an acknowledged point of doctrine that the abundance of serosity acted on the blood by *modifying its tendency to inflammation*, in somewhat the same manner as water added to alcohol prevents it from *inflaming*. Here, gentlemen, the word is used in its true signification. I had, as it happened, set about repeating the experiments of Sir Benjamin Brodie, now one of the first surgeons in England, on the ligature of the ductus choledochus. The animals on whom I practiced the operation, died without exception, of peritonitis. With a view of preventing this disagreeable result, I practiced a copious bleeding before the experiment, fancying, in conformity with the notions then prevalent, that I should thereby infallibly put a stop to the development of inflammation,—the inflammation nevertheless appeared with even still greater intensity than before. Subsequently I injected water in the room of the blood withdrawn, but in every instance peritonitis supervened with greater violence than before, and proved rapidly fatal. At the present time, when more correct notions on pathology have replaced those of former days, it appears to me that the more the blood abounds in serosity, the more probable it becomes that the consecutive exhalations of the serous membranes will be abundant ; and hence, that, to use the orthodox language, inflammation will be more violently developed. Now, this fact alone shows what fatal consequences may be the result of a fallacious theory founded on an imperfect conception of the morbid phenomena occurring in the body. I do not hesitate to assert that the anti-inflammatory bleeding ordinarily practiced before capital operations, may frequently, according to the constitution of the individual undergoing them, help to deter-

mine the serious accidents observed to follow those operations. I recommend you strongly to take a note of this proposition, and to watch with attention the issue of cases in which such prophylaxis has been adopted. You will, no doubt, find exceptional cases, but in the majority I make no question you will have reason to admit the justness of this view. The whole forms a subject for inquiry, which, though of great interest, has not yet been examined by any one. I myself long upheld contrary opinions to those I now maintain, but I willingly sacrifice my vanity and acknowledge my error; if all were as ready to do so, the progress of our science would be much more rapid."

What experiment and sound reason so clearly indicate to be truth, gentlemen, we shall generally find confirmed in practice; and such I know to be the case in respect to the proposition now under consideration. Let a healthy person receive an injury sufficient to justify the apprehension of inflammatory action; and let the lancet abstract blood freely from his system, changing the constituency of the blood, diminishing its fibrin and increasing its serum. If inflammation was to be apprehended before, it has now become unavoidable; and instead of the reparative, I might say healthy character of the excitement which would have ensued, you will now have an intensity of morbid action, in exact proportion to the changes you have effected in the blood by your venesection. And, indeed, it may be laid down as an established rule, that inflammatory action is least to be deprecated, and is always most manageable, when the constitution is most strong, and the blood in a normal condition.

But for the correctness of this doctrine we need not depend on the authority of Magendie alone, however unimpeachable. The same view is in fact sustained by Hunter, Tweedie and others.

"In inflammation," says Hunter, "when the constitution is strong, then it will be commonly the most manageable, for strength lessens irritability. But in every kind of constitution inflammation will be the most manageable where the power and the action are pretty well proportioned."

Again: "A wound, for instance, made upon a person of a healthy constitution and sound parts, will unite almost at once; it admits readily of a union by the first intention. A greater

strength of constitution and of parts admits of resolution, while in the adhesive state of inflammation, very readily, and therefore tends to prevent the suppurative inflammation from taking place, for it gives a better disposition to heal by the adhesive; so that the union of parts by the first intention, the inflammation and resolution, as well as the readiness to change from one to the other, according as the preceding is prevented, depends equally upon the strength and health of the constitution and parts inflamed. We may also observe that a greater strength and soundness of the constitution or parts inflamed, when the inflammation has got beyond the stage of resolution, and has assumed the disposition for suppuration, hastens on inflammation and suppuration, and also brings it soon to a termination, while at the same time the matter is brought more quickly to the skin by ulceration. Whatever therefore, is the step which nature is to take, whenever an injury is done or a necessity for inflammation has taken place, it is performed with readiness and facility in strong constitutions and parts.

“Weakness of constitution and weakness of parts are supposed to be the immediate cause of most tedious or chronic diseases.” In regard to this last proposition Mr. Hunter says: “Where there is a strong susceptibility for any one disease, in which weakness might also become a predisposing cause, I can believe that in such cases weakness, especially if suddenly brought on, may become an immediate cause of that disease: as for instance, a man may, from a wound or any other cause, have a tendency to a locked jaw. If you bleed that man freely it is a thousand to one that a locked jaw comes on; weakness produces a consciousness of its own want of powers, or incapacity, which produces increased action, that even proceeds the length of unnatural actions called nervous.” * * *

“When a wound is made in a person of a weak habit there is a great backwardness in the two cut surfaces to unite by the first intention, therefore inflammation takes place if there be strength of constitution to produce it, which is not always the case, so that in such habits inflammation is more likely to be a consequence; but this does not arise from a greater readiness to inflammation in the habit, but from a want of power and disposition to heal,

which renders inflammation necessary. However, in this case, the want of powers or disposition to unite may partly depend on a different principle from that of weak parts or solids: it is probable that the blood of people of weak habits, is weak in its living principle, which it therefore very soon loses upon extravasation, so as to become unfit for a bond of union, by which it degenerates into an extraneous body, and therefore the suppurative inflammation must take place if there be strength to produce it.

“In weak habits and diseased parts inflammation is slow in any of its salutary effects, and is hardly capable of either producing the adhesive or suppurative inflammation.”

This same doctrine of the necessity of vigor in the constitution, to sustain necessary inflammatory action, is clearly taught also by Tweedie, in his voluminous Library of Practical Medicine; and he also fully recognizes the tendency of blood-letting to deteriorate the blood, and enfeeble the constitution, and acknowledges its injurious influence on the termination of inflammation in many cases; yet he is one of the most strenuous advocates of its general employment in inflammatory affections. It is strange, passing strange, that with all the acknowledged facts before his eyes; with the revelation by the microscope of the uniform condition of the parts involved in inflammatory action; and the well known influence of general bleeding upon the constitution of the blood, and upon its circulation in the capillaries; and with a personal experience and observation which compel him to acknowledge that “it is in a few cases only that blood-letting can be said to cut short inflammation;” and that “the more usual effect to be hoped for, is more correctly expressed by saying, that it *disposes it to a more favorable termination*,” it is I say, passing strange, that with such facts and experience staring him in the face, this author has never conceived or at least expressed the suspicion that this unnatural and hazardous agency should be entirely dispensed with, and such means employed for the treatment of inflammation as will more generally tend to cut it short.

I will give you one or two remarks of this author, which, although they may look strange in the new relation which I compel them to assume, yet they will I think serve a much more val-

uable purpose in an argument against the sanguinary mode of treatment than they can ever do on the other side of the question.

“In judging of the effects of blood-letting on inflammation,” says Tweedie, “it is important to observe, that the remedy may be highly beneficial, even in cases where the inflammation may extend, or the *effusions consequent on it increase, after its use.* It may often be observed, as in cases of pneumonia, that after full bleeding, the fever subsides, and the breathing is considerably relieved; but, nevertheless, the indications by auscultation and percussion, of the extension of the effusion in the lungs and pleura continue for some days. But if the febrile *symptoms do not return,* and the *breathing continues easy,* it may nevertheless be confidently predicted that, *under proper management,* in a sound constitution the case will terminate favorably, and the effusions gradually disappear by absorption and by expectoration.” * * *
 “It is in few cases only that blood-letting can be said to *cut short* inflammation; the more usual effect to be hoped for, is more correctly expressed by saying, that it *disposes it to a favorable termination.*”

“While such benefits are to be derived from the prudent use of blood-letting in the strictly inflammatory diseases, and in their early stage, it is equally certain that in diseases not strictly of that type, and in the advanced stages even of the best marked inflammations, it may either *aggravate and prolong the disease, or even rapidly and considerably determine its fatal event.*”

Now, with so little hope of “cutting short” the inflammation, with the bare possibility that fever *may* not return after bleeding, and that the case may terminate favorably under “proper management;” and in view of the nice distinctions as to constitutional condition, stage of the attack, type of the disease, &c., thus shown to be indispensable to its safe exhibition, how in reason can a sane man contend for the practice of general blood-letting? But perhaps the cases in which its use is advisable are so clearly defined that there is no danger of mistake, and the few cases in which the measure is admissible may be readily determined. Let us see what our author says on this point:

“The symptoms by which such distinctions are to be established belong, of course, to individual diseases, and cannot be advanta-

geously stated here ; but there are two symptoms common to all inflammatory complaints, and often guiding in a degree the use of blood-letting"—“these are the state of the pulse, and the state of the blood in inflammatory diseases.” He then gives the peculiarities of pulse,—such as the *more frequent*, the *fuller*, the *firmer* or *stronger*, and the *sharper* pulse, compared with the natural pulse, as indicating the inflammatory condition. “But,” he says, “there are many cases of active inflammation, admitting of the most essential benefit from blood-letting, in which one or more of the peculiarities here stated are absent.” And again:

“Of the possibility of this fallacious fullness and even sharpness of the pulse”—“some of the experiments of Dr. Parry on animals, killed by repeated bleedings, and in which the pulse was ‘*full and bounding*’ almost to the moment of death, afford unequivocal proof. And it were easy to quote practical observations by Rush, Armstrong, Marshall Hall, Travers, and others, illustrating this ‘reaction after the loss of blood,’ which may, perhaps, be most correctly described as a modification of the inflammatory fever, produced in a great measure by the loss of blood, and persisting after the local inflammation has subsided or passed into a state no longer demanding evacuation.”

The pulse, then, is no safe guide ; for, according to this most orthodox theory, we should often bleed when the pulse forbids ; that is, when “one or more of the peculiarities” denoting inflammation “are absent ;” and it may be “fallacious,” and seem to indicate the lancet, when the “inflammation has subsided or passed into a state no longer demanding evacuation.”

But the blood,—we may surely rely upon *its* appearance and state to guide us in “the use of blood-letting.” Let us see : First, you must abstract, and let it stand and coagulate, before you can ascertain whether its abstraction is proper or not. You must also be very expeditious in your experiments and examinations of the clot, serum, buffy coat, &c. ; the time consumed may carry you beyond that “early stage” in which the measure will be proper. Well, having satisfied yourself as to the state of the blood, are you now prepared to act ? Suppose you find the buffy coat, will you proceed to take more blood ? Be cautious ; for, says Dr. Tweedie, “In regard to the buffy coat there are

occasional anomalies not yet understood." And again: "If, however, as is most probable, the blood acquires this property by passing through the vessels of the inflamed part, it is easy to understand that, for some time after even intense inflammation has set in, the *buffy coat will be slight*, or even imperceptible; and again, that when inflammation of some standing is declining, or still more, when it has passed into the stage of suppuration or ulceration, the buffy coat will still be found in perfection: and, therefore, that its absence or slight degree in the early stage of inflammation is no reasonable objection to blood-letting; and that its presence in the advanced stage (especially if suppuration is going on) is no indication for the remedy."

Thus, then, our second guide in the use of blood-letting utterly fails of affording any reliable assistance, and we are left to the uncertainty of chance in the exhibition of an agent, which, if we would be orthodox, must be employed in a case of active inflammation. The pulse is indefinite; the blood may be without the buffy coat; if we wait long the first stage may be past, and we cannot bleed at all: if we only knew the case required bleeding, or would "*bear*" it, and that this is the proper time, we might possibly "*cut short*" the inflammation, or at least "*dispose it to a favorable termination*;" but then to take blood wrongfully may do much harm; there may be "*reaction after the loss of blood*;" or one of the chief evils which Dr. Tweedie says, further on, "*is always to be apprehended*" from large and repeated bleeding, may arise,—namely, "*that it always increases the facility with which the surface of the body may be chilled, and, therefore, the liability to relapse, or to the excitement of fresh inflammatory disease, perhaps of worse character, on any subsequent exposure to cold*;" or we may "*aggravate and prolong the disease, or even rapidly and considerably determine its fatal event*." What say philosophy and true science, under such circumstances, should be our course? Most emphatically, "*bleed not at all*," is the response heard by every unprejudiced mind.

Thus, gentlemen, I have given you a summary of the experiments which have been made with the blood, for the purpose of determining its normal composition, the influence that any deviation from the due proportion of its elements has upon its circulation

in the minute tubes of the capillary system which have to be traversed by it, and the effects of blood-letting on its constituency and on its capillary circulation. I have, as I think, fairly examined, by the light of science, the claims of the blood-letting theory; and now, in view of all that has been said, and in view of one other fact: that thousands are dying annually of inflammation, under orthodox practice; I ask in all candor whether we have not sufficient reason for rejecting *the blood-letting treatment*, and seeking a better mode of practice? That better mode it will be my pleasure now to describe.

Truth is what we all desire, and after men have theorized, and speculated, and dogmatized, to the full extent of their mental and physical powers, we are not satisfied with their conclusions, unless they bear the impress of her signet, and that endorsement is only to be obtained in the department of practical experiment. But when the results of our practice verify the correctness of the conclusions we have drawn from natural phenomena, as observed in health and in disease, we feel that we are standing on tenable ground; and when I assert, as I do, without fear of contradiction, that, within the last fifteen years, I have treated nearly every form of inflammatory disease, without resorting to general blood-letting in a single case, and with uniform success,—I merely state the simple truth. And such being my experience, it is vain for any one to tell me that this class of disease cannot be successfully treated without the lancet.* And now, when I compare the results of my practice in these latter years with those which attended my early experience, it is with the most triumphant satisfaction that I declare to you, that the anti-blood-letting treatment, which I am about to describe, has not only been attended by little fatality, but that it has proved more promptly curative, and has been very rarely followed by any of those consequences of effusion which so frequently follow the treatment of inflammation by general blood-letting.

But my hour has expired, and I must defer what I have further to say on this subject, until our next meeting.

* In my early practice I frequently resorted to blood-letting, though not as frequently as most other practitioners of that time.

LECTURE XX.

INFLAMMATION—CONTINUED.

Treatment—Indications—Remove cause—Equalize Circulation—Attention to Skin—Objection answered—Hæmastasis—Adjustment of Ligatures—Other Measures—Phrenitis—Inflammation of the Brain — Definition — Synonyms — General Remarks—Symptoms—Premonitory—Early Stage—More advanced Stage—Fatal Termination—Diagnosis—Prognosis—Anatomical characters—Reference to Phrenology—Further Research urged—Causes—Treatment—Obscure Chronic Diseases—Neuralgic Affection.

Having occupied so much time yesterday, in discussing the subject of blood-letting, I was unable to give you any information in reference to the general mode of *treatment* which the eclectic school of medicine regards as appropriate in inflammation. This I propose to do in the present lecture.

From what was shown to be the condition of the parts involved in inflammatory action, and the effects of general blood-letting on the circulating fluid, you would not now need to be told, even though you had never heard it stated, that we reject the lancet as a means of treating inflammation. And yet so universal has been the resort to this mode of treatment, that when we speak of any other method, it seems almost necessary to regard it as a substitute for venesection. Should not the very opposite of this be regarded as the true state of the case—namely, that general blood-letting has been substituted for the rational and philosophical management of inflammation, and that our object and duty are not to find a substitute for bleeding, but, having demonstrated its inappropriateness, lay it aside, and adhere to measures truly scientific and curative?

The *first indication* to be fulfilled in the treatment of inflammation, is, if practicable, to remove the cause of the difficulty. It will be of little avail to give medicines, or employ means to arrest, modify or palliate inflammatory action, while the irritating cause, whether local or constitutional, remains. So that the very first subject of inquiry, when a case of inflammation is brought under your notice, should be, what is the cause of the morbid condition? This principle should not be lost sight of in any case, for without reference to it, you must in a measure operate in the dark; having no plainly defined indication to fulfill, you are compelled, where the cause is unknown, and cannot be ascertained, to act upon supposition or assumption, which may or may not be correct; but when you know the origin of the difficulty, you will feel far less embarrassment in determining what treatment is required.

Of course I can only speak now in general terms of the principles to be observed. Special means and instrumentalities must for the most part be deferred until I take up the special diseases. Having ascertained the cause, then, your remedies must be adapted to the peculiarities of the case. It is true, the present difficulty may be no longer dependent on the cause that originated it, as the inflammation produced by a scald; but if so, you should know that fact certainly. There are many cases, however, where the inflammation is not only originated, but sustained and increased by the constant operation of the exciting cause, as where gastritis has been produced by alcholic liquors, and the individual still keeps up the habit of dram drinking. Sometimes the inflammatory action is merely the reflection of some prior disease, general or local, and it may progress until the reflection will become the paramount difficulty, obscuring, perhaps entirely eclipsing, the primitive affection; which may still remain, however, exerting its injurious influence on the case, and rendering futile all efforts to remove the inflammatory disease. This fact should by all means be detected, wherever it exists, and the proper treatment instituted for the removal of the primary cause. When this is accomplished, you are prepared to manage the inflammatory affection with more prospect of success. You then have to con-

tend with the reflected affection alone, whereas, before, you had the original difficulty, also, on your hands.

Having removed the cause, or ascertained its absence, the next most important indication is that of *equalizing the circulation*. When this shall have been accomplished, and an equilibrium of the circulating fluid is established throughout all the minute ramifications of the capillary bloodvessels, you will of course have obviated the difficulty and accomplished your work. But you must be careful to attain this end by such means as shall not inflict violence on the constitution, or impair the vital functions; hence general blood-letting is out of the question.

The indication next in importance, and one indeed to which your attention should be directed simultaneously with the fulfillment of the last, is the removal of offensive and vitiated materials from the system. The measures employed to effect this object will also be among the most effectual to equalize the circulation. Hence I say the two indications should receive simultaneous attention. A thorough evacuation of the stomach and bowels is, generally, the most appropriate measure which can be directed for these purposes. It accomplishes a threefold object, first, the removal of accumulations, whether of undigested food, vitiated secretions or fecal matter, from the alimentary canal, which if allowed to remain must be a source of disturbance to the entire system; secondly, the stimulation of the secretory organs to increased action; and thirdly, the equalization to a greater or less degree, of the general circulation. In addition to these manifest and immediate results of gastro-intestinal evacuation, it is a fact that you will remove from the circulating fluid of the body, by the operation of one thorough cathartic, a greater amount of matter, than you would dare to abstract by venesection, and that too, the very matter which it is best to have withdrawn; and the loss of which will not destroy the equilibrium of the normal constituents of the blood. You draw off, through the eliminating functions of the intestinal surfaces and glands, the effete, irritating matters which are embarrassing the vital functions, and you leave behind the healthful elements of the blood, so essential to life, and to the repair and replenishment of the different organs; and you do it without injury to any of those organs. Besides, it has already

been shown, beyond all question, that the loss of blood does not tend to produce permanent reduction of inflammatory action.

The vacuum, so to speak, produced by the sudden abstraction of blood, is filled at the expense of the capillary circulation, and thus a temporary mitigation of the inflammatory engorgement is effected, but this is immediately followed by a returning tide, impoverished by venesection, and unfitted, as Magendie has demonstrated, for free capillary circulation. Hence blood-letting, so far from curing, must necessarily aggravate the inflammatory condition. No such result will follow the operation of an appropriate cathartic.

There is another indication analogous to the preceding, and scarcely less important; and that is, to promote a *healthy condition and increased action*, of the *skin*. The last mentioned measures had in view the removal of obstructions from the internal surface, and the establishment of laudable secretions from the mucous membranes and glands; but the external surface is greater in extent, equally liable to derangement of function, and is a medium through which very powerful sanative impressions may be made upon the nervous and circulatory systems. The skin is not a mere covering for the body, but it is a vast emunctory, for the elimination of useless or hurtful matters from the system, performing more in this way than any other organ in the animal economy, almost as much, indeed, as all the others taken together. Hence you see the importance of giving attention to the skin in all diseases, especially in those of an acute form, and still more especially in inflammatory conditions of the system. Not only does philosophy point to the skin as an organ upon which remedial measures may be employed with great propriety and benefit, but practical experiments and observation have demonstrated the efficiency of such practice. Such treatment, then, should be instituted in the management of inflammatory disease, as shall first effectually cleanse the surface from all filthy, unctuous, or other matter which clogs the pores, and otherwise impairs the cutaneous functions; and secondly, promote the activity of those functions until copious perspiration is established.

And, gentlemen, you cannot too highly appreciate this indication. When you remember that the skin in health, without any

sensible evidence of moisture, does, by what is denominated the insensible perspiration, throw off from the system several pounds of matter daily, you will be prepared to anticipate highly important depurative results from such copious perspiration as may be induced with entire safety, by means familiar to any respectable practitioner.

It is, however, *objected* to the course of treatment I have just prescribed for the arrest of inflammatory action, that circumstances are presented occasionally, where no time is allowed for the action of a cathartic, nor the establishment of perspiration. And we are asked, with perhaps an air of triumph, whether we would not then resort to the lancet? Certainly not. We have another mode of meeting such emergencies, more prompt, more efficient, more philosophical, and incomparably more safe. What! you exclaim, is there any measure upon which we may rely for immediate relief, as in case of severe congestion of the brain, or rapid hemorrhage from the uterus or lungs, tending to a speedy destruction of life? I assure you, gentlemen, that we have a resort much more reliable in all such cases, than venesection is even claimed to be by its most tenacious adherents. The measure to which I refer is *hæmastasis*, or the controlling of the circulation by means of *ligatures* around the extremities. By this means you can withhold a very large amount of blood from the general circulation, without robbing the system of any portion of that important element, or in any degree impairing its quality. I have seen rapid and copious hemorrhage from the lungs promptly and effectually arrested by this means. In fact, the first case in which I applied the ligatures was one of this character; the hemorrhage ceased in a very few moments, notwithstanding the case was one of very formidable symptoms; and the patient's system suffered none of the injurious effects which must have followed the abstraction of a sufficient amount of blood from the arm to have arrested the pulmonary hemorrhage.

The proper *adjustment of the ligatures* is a matter of much importance. They should be passed around the limbs near the body, and drawn so tightly as to arrest the circulation in the veins, but not in the arteries. Should you compress the arteries so as to prevent the flow of blood into the limb, your ligature would of

course do no good and might increase the difficulty. Where the effect is desired to be suddenly produced, and the symptoms require a very great impression to be made, all the limbs may be ligatured at once, and to the effect of retaining a large amount of the venous blood in them. When a less impression is required, part only of the limbs may be ligatured, or if all are tied, the effect may be regulated by making the bandage more or less tight. In this way you may produce any desired effect, even to syncope. In removing the ligatures, remember to do so gradually, so as to allow the blood to return by degrees, into the general circulation.

The *length of time* that the ligatures shall be kept on, will depend of course upon the circumstances of the case. As this measure is only employed for present effect, and to gain time for the employment of other remedies, as is venesection by its practitioners, it is seldom necessary to be continued long, though when necessary it may be repeated at pleasure. And herein is one great advantage of hemastasis over venesection, that it may be employed on all constitutions, and repeated as often as necessity may require, whereas the abstraction of blood is entirely inadmissible in many cases, and in all it becomes more and more so by repeated bleedings. Another important consideration grows out of the fact that we are all liable to error in the exhibition of remedies, but if upon applying the ligatures you find the measure will not be borne, to the extent you have carried it, you may correct your mistake, and all is right; but who shall return to the exhausted vessels life's vital current, where the too officious lancet has compelled its escape? Instances are not wanting where practitioners would have given liberal premiums, to have had blunders of this kind corrected.

Various *other measures* are employed, having for their object the protection or mollification of inflamed surfaces, such as local depletion, counter-irritation, revulsion, and so on, all of which will be more appropriately presented in connection with particular forms of disease. Let what has been said suffice, as a general outline of treatment of inflammation.

PHRENITIS—INFLAMMATION OF THE BRAIN.

Having considered the subject of inflammation in its general

outlines, we will now pass to the individual diseases which belong to the inflammatory group. In treating of the subject according to this arrangement, I am aware that I depart from the classification generally adopted in the books; but I do so, not with a view to be captious or eccentric, but because it appears to me more consistent with science and true philosophy, to associate diseases, in some measure according to their manifest analogies, rather than to group them as they may be developed in the same organ. Hence I shall now treat of inflammation in the various structures of the body, pursuing the subject from organ to organ, as may seem most in accordance with a natural arrangement. I shall commence with *Inflammation of the Brain*.

Quite a number of terms have been employed by different writers to designate this affection. It has been called Phrenitis, from the mental derangement which attends it; Encephalitis, and Meningo-Encephalitis, from the structures involved, and Arachnitis, from its supposed origin or seat in the arachnoid membrane. The term Phrenitis, is perhaps more arbitrary than any other, but it seems less liable to misapprehension than any other, and I shall generally employ it as synonymous with inflammation of the brain and its membranes, having no reference to any particular locality.

There is so little difference, if indeed there is any at all, between the symptoms manifested during life, whether the *brain itself*, its *membranes* merely, or *both*, are inflamed, that no advantage can result from a separate consideration of inflammatory action in these different structures, at least so far as pertains to diagnosis; and as the affection, in each and all of these portions of the encephalon, indicates precisely the same treatment, such a distinction is divested of all practical importance. Post mortem researches may enable us to ascertain, in a given case, what particular structure or location within the cranium was the special seat of lesion, but we shall seldom find either the brain or its membranes extensively inflamed without the other being also involved. When we wish to designate inflammation of the meninges alone we use the term *Meningitis*, and when we speak of inflammation of the substance of the brain alone, we call it *Cephalitis*. Where we desire to refer to inflammation of the serous

covering of the cerebral mass we use the term *Arachnitis*. This last named affection will require special notice when we come to speak of Cholera infantum, as it possesses special importance in relation to that disease ; but with this exception we shall treat of inflammation of the brain and its appendages under the comprehensive term of *Phrenitis*.

Symptoms.—An attack of inflammation of the brain may occur very suddenly, or it may come on slowly and gradually. It is sometimes produced by exposure of the head to the direct rays of the sun in very hot weather. Persons under such circumstances may be suddenly attacked with such violence as to be unable to get home. But the affection generally commences by a more gradual progression of symptoms, constituting a kind of forming stage, as observed in other diseases. The early symptoms commence with a vague uneasiness in the mind, lowness of spirits, defective appetite, general debility and weakness, in some cases vertigo and dizziness ; unpleasant sensations on changing position, as blindness and giddiness, with a tendency to stagger on rising from a stooping posture, and uneasiness in the head with confusion of ideas on lying down. Another early symptom, often, is a ringing in the ears, called *tennitus aurium*. These premonitory symptoms do not continue as long as the forming stage of fever, but usually long enough to admonish the individual of the approach of serious disease. In this stage of the attack the *pulse* is slow and full, but upon the first development of inflammatory action it will become rapid and small, with a hot skin and much thirst. These symptoms are usually preceded by a *chill*, which sometimes amounts to a “shake.” This will be accompanied by a severe *headache*, with more intense suffering than will be experienced after the disease shall have considerably progressed, and the inflammatory process shall have blunted the sensibility. As the disease becomes fully developed, the *face* appears flushed and swelled, indicating great determination of blood to the head. The pulsations of the carotid arteries are rapid and forcible, often imparting a perceptible motion to the pillow upon which the head rests. The *eyes* have a very striking and peculiar appearance ; in some cases they are bright and suffused with water ; in others there is a wild, anxious expression, as if evil were foreboded ; or the patient

looks earnestly about him as if apprehensive that some one intends to do him injury, while his language will not express any such impression. The *tennitus aurium* will be increased perhaps until the sound will resemble the buzzing of bees, or the roaring of a distant waterfall. The *eyes* are painfully *sensitive to light*, and when it is allowed to fall upon the face suddenly, as by the opening of a door or window, the head will be suddenly turned from it, and the eyes forcibly closed. This symptom may, indeed, be the first to fix the suspicion that inflammation of the brain has occurred; for all the other symptoms I have described may occur in an attack of fever, with much nervous irritation and determination to the head, without the cerebral lesion reaching the point of inflammation; but in such cases you will not find this exquisite sensibility of the eyes to light. Upon examining the pupil it will be found contracted, sometimes almost entirely closed, which is a very characteristic symptom, though in making the examination at different times, you should remember that the degree of contraction will depend, in a great measure, on the intensity of the light.

As in many other diseases, *constant restlessness* is an early symptom, which in phrenitis becomes increased by the intolerance of light, and the progress of the inflammatory action, and is soon associated with convulsive muscular movements, and with evidences of delirium, an invariable attendant on active inflammation of the brain. The pulse is hard, frequent, quick, and occasionally irregular. The respiration is peculiarly affected, not hurried as in most febrile diseases, but sighing and irregular; and this is an important guide in distinguishing between inflammation of the brain and mere congestion of that organ in fevers. The skin upon the body is usually hot, while upon the extremities it is inclined to be cold, the capillary circulation is decidedly diminished, and the cutaneous functions partially or wholly arrested. Generally, the stomach sympathizes with the brain more than any other organ, in this as well as other diseases; consequently, nausea and vomiting are frequent symptoms of phrenitis. Constipation, often very obstinate, is a frequent occurrence, owing to the diversion of sensibility from the organs under control of the nerves of organic life, during active inflammation in the cerebral centre. Hence,

also we find the urinary secretion greatly diminished, if not entirely suspended.

As the *morbid action progresses*, a very great change of symptoms occurs. The delirium of the earlier stage subsides into a state of drowsiness or stupor, sometimes complete coma. There will be great difficulty in arousing the patient; the pupils, instead of being spasmodically closed by the action of light, now become permanently dilated, and there is comparative insensibility to light. The hearing becomes very much impaired, and in fact all the sensibilities become blunted, if not entirely suspended. The convulsive muscular movements are often modified into subsultus tendinum; and the patient picks at the bed-clothes, or reaches about as if trying to grasp something in the air, in the manner described while treating of typhoid fever. Sometimes there is rigidity of the muscles, with perhaps contraction of the fingers or toes, or a whole limb. This indicates very severe cerebral lesion. The pulse changes from frequent and small, to the slow, sluggish and full pulse common to apoplectic and comatose conditions. If it is intermittent, this may be regarded as an unfavorable symptom, indicative of extreme cerebral oppression.

The urine is generally very nearly suppressed, but if the secretion go on, it is apt to be retained, and greatly distend the bladder.

At last, the *vital powers are overwhelmed* by the progressive march of the inflammation, and begin to give way. Another change now occurs in the symptoms. The pulse, which in the beginning of the inflammatory action was rapid and quick, and became slow and depressed in the second stage, now becomes very rapid and small,—not so hard as in the first stage, but hurried and irregular. The surface appears sunken and collapsed, and the capillary circulation is entirely arrested, the countenance looks haggard and cadaverous, a cold, clammy perspiration appears upon the skin, and the patient insensibly sinks into the arms of death.

Such, gentlemen, is an outline of the usual course of a fatal case of inflammation of the brain. The symptoms, it may be remarked, vary in different cases, in accordance with constitutional peculiarities of the patient, the violence of the attack, and the complications attending it. It is probable also that the violence

of the symptoms, such as rigidity of the muscles, drowsiness and insensibility, depends in some measure upon the involvement of the deeper cerebral substance, and that where the case falls short of these manifestations, we may suppose the inflammation to be principally confined to the membranes and periphery of the brain.

The *diagnosis* of phrenitis may be more difficult than you would, at first thought, suppose. The phenomena presented by many febrile attacks are very similar to those which generally mark the commencement of encephalic inflammation. Generally, however, there will be something in the history of the case, or some additional symptoms or circumstances which will enable you to distinguish phrenitis from such diseases as bilious fever, typhoid fever and small pox. If not at first, diagnostic symptoms characteristic of these individual diseases will soon make their appearance, and demonstrate the character of the attack. Simple inflammation of the brain will lack those general and peculiar symptoms which have been described in speaking of fevers—especially in the second stage, and the distinction will be more and more easy as the case progresses.

Delirium Tremens is, perhaps, more liable than any other affection, to be mistaken for inflammation of the brain; and scarcely any other mistake is more likely to be attended with unfortunate consequences. The active treatment, requisite in acute phrenitis, would generally sink a patient laboring under delirium tremens beyond recovery, the opposite course of treatment being the only hope in the latter disease. Here again the history of the case is important. If the individual have been addicted to intemperate habits, or should the smell of alcoholic liquors be detected in his breath, suspicion might be entertained that the difficulty was *mania a potu*. But if so, it will be characterized by peculiarities differing from those of inflammation; such as horripilation, and fearful foreboding of evil, or a sense of alarm and terror, at some imminent danger actually present. Enemies present themselves in a thousand different fantastic forms; myriads of bugs, reptiles, and snakes are seen crawling about and upon his person; perhaps an infuriated clan of demoniac forms, armed to the teeth with dirks, bowie knives, bludgeons and firearms are seen skulking in the corners of his room, meditating blood and

murder on the helpless victim of their malice ; or perhaps your patient assumes the office of mediator between contending duellists, and seeks to reconcile those who appear to him intent on destroying each other's life. These peculiarities in most cases will clearly signalize cases of delirium tremens.

The symptoms already described will be sufficient, in fact, in most cases to form the basis of a correct diagnosis, namely, the pain in the head, the gastric disturbance without evidence of disease in the stomach ; the delirium ; convulsions ; affections of the hearing, and especially of the sight, the sensitiveness to light, and permanent contraction of the pupil ; and in the later stage, the permanent dilatation of the pupil, the stupor, or coma, rigidity of muscles, &c., leave no room for reasonable doubt.

The *prognosis* depends much upon the condition of the general system, the cause and nature of the attack, and the stage at which treatment is commenced. It is always a grave affection ; yet where the necessary treatment can be borne by the constitution of the patient, and where the case has not progressed so far as to produce serious disorganization, recovery may generally be anticipated. Where it is the result of some known accident or temporary circumstance, the chances are more favorable than where it arises spontaneously from some constitutional cause, which may sustain the difficulty in spite of our remedial measures ; yet even the most discouraging cases should not be abandoned as hopeless, for recovery sometimes occurs in cases which had seemed to be beyond the reach of remedies.

We will next give some attention to the *anatomical characters* of phrenitis. And now we shall be able to discover, what the symptoms during life have not revealed, the precise seat and extent of the inflammatory process. The contiguity of the dura mater to the other membranes and to the brain itself, would lead us to expect to find it generally involved in the inflammatory action. This, however, is not generally the case, unless where the disease is the result of injury in which the dura mater has participated. Like the periosteum, and other structures of low vitality, it appears less liable to the encroachments of inflammation than those more vascular membranes, the pia mater and arachnoid. But these latter tunics of the brain are not always involved where the

substance of the brain itself has undergone serious organic changes. The stomach may have been much affected, and the general muscular system convulsed or paralyzed, with even apparent sympathetic affection of the membranes enveloping the brain itself; an instance showing that organs remotely situated often have more direct and intimate sympathy than those lying in actual contact.

In case of a *blow* or other *external violence* the dura mater is quite as liable to inflammation as the other structures, and in that case is frequently found separated from the bony structure, and the surface of the skull is left in a smooth, slippery condition, and whiter than natural, while the membrane itself may be merely injected so as to appear reddened and thickened, or it may be in an ulcerated or even gangrenous state. Occasionally, it is covered by a layer of lymph or pus. The arachnoid more rarely escapes being involved to some extent in cerebral inflammation, yet it seems to be remarkably exempt from structural changes or disorganization. It is sometimes found perfectly sound, transparent and glossy, with both its surfaces covered with pus. It is often, however, injected, and somewhat opaque, and covered by a deposition of lymph. The effusion of lymph may be found between the dura mater and arachnoid, in the cavity of this membrane, or between it and the pia mater. Sometimes the arachnoid is found dotted with little particles of red matter, and occasionally it has a rough feel under the finger. This dotted appearance is usually found to accompany the active stage of inflammation of the brain, and it will be observed generally, where copious effusion has taken place into the subarachnoid space and cellular tissue. In such cases the fluid effused will escape when the serous membrane is punctured. This effusion is in the folds of the pia mater, between the convolutions; and when the fluid portion is thus allowed to escape, by puncture of the arachnoid, such portions of lymph or pus as may have become concrete, remain involved in the cellular tissue of the pia mater and have the appearance of yellowish patches. Sometimes a layer of concrete pus or lymph may be found between the two surfaces of the arachnoid, resulting without doubt from an altered condition of the fluid usually secreted by this membrane. The function of the arachnoid is evidently to secrete a serous fluid to lubricate its smooth opposing surfaces,

and thus prevent friction and adhesion, while freedom is allowed for all the changes of position in the brain, required by the motions incident to the circulation of the blood, and mental exercise. That motions of both these descriptions occur in the brain, cannot be doubted with reason. I myself have had an opportunity, on one occasion, of observing such motions to occur, in a remarkable degree. Sometimes a considerable quantity of serous fluid, generally rendered turbid by lymph, pus, and perhaps blood, is found in this cavity, and also in the subarachnoidean space, and in the ventricles. This is more likely to be the case where the inflammation has approximated the chronic character.

The pia mater is reddened, and often adheres with so much tenacity to the surface of the brain, that the latter will be torn, in an attempt to separate them. The surface of the brain is almost always in an altered condition. Sometimes it is softened where the inflammation of the meninges has been protracted, but generally it is hardened where the membranes have been the principal seat of inflammation. Upon cutting across the fibres in the substance of the convolutions, many bloody specks or points will be observed, but where the incision is made parallel with the fibres, there will be a streaked appearance, indicating in either case the engorged condition of the minute blood vessels, which ramify through the medullary substance.

Scarcely ever are the ventricles of the brain found free from accumulations of serum. The amount, however, varies greatly in different cases.

The medullary substance of the brain frequently undergoes material changes. It is sometimes so softened as to be easily scraped up with the handle of the scalpel, presenting the appearance of lard. It requires much experience, however, to be able to detect the evidences of disease in the substance of the brain. Indeed, notwithstanding the many minute post mortem examinations of this organ which have been made by skillful pathologists, comparatively little is known which throws light upon the nature of phrenitis, or by which we may be guided in diagnosis. Even the most formidable, raving insanity, may leave not a trace of disease in the brain or its meninges, which shows that the condition of this organ in disease is very obscure. It is supposed by

some that insanity may be simply a functional disturbance, without any physical disorganization or structural disease. But this seems to me to be improbable; I cannot suppose so palpable a disease as insanity to occur without some physical change in the cerebral organs, but in what that change consists we are often unable to determine, from our want of knowledge of the minute structure of the cerebral substance.

Many efforts have been made to discover some constant relation between the external manifestations of disease and the different localities of diseased action in the brain, and thus enable the practitioner to form accurate opinions, in the various cases which may be presented to him, as to the precise location, extent and degree of inflammation. Very little reliable information, however, has been gained by these efforts. The researches of Gall and Spurzheim, and their successors in the department of phrenological science, seemed to justify the hope that something might be gained for practical medicine in this way, and it is very probable that such may yet be the case. Phrenology has demonstrated the fact that the brain consists of a plurality of organs, adapted to the exercise of a like plurality of faculties of the human mind; and, if each mental power has its appropriate cerebral organ, it seems not at all improbable that each corporeal function and action is under the control of some special organ also. Many experiments have been instituted to establish the doctrine that different portions of the brain influence or preside over different parts of the body. Some have attempted to show that the periphery of the brain presides over the mind, and the deep structures over the body. My friend, W. Byrd Powell, M. D., of Covington, Ky., believes he has discovered that the motive power of the muscular system resides in the cerebellum, and he sustains his proposition by very plausible arguments and experiments.

The decussation of the fibres of the medullary substance in the medulla oblongata, has led many to believe that the functions of each side of the body may be governed by the opposite side of the brain, and experiments and observations seem to justify the idea. So that muscular rigidity, spasm, or paralysis on one side, is thought to refer with some certainty to lesion of the opposite side of the brain. Some experiments of physiologists seem to

establish a sympathetic relation between the cerebellum and the genital organs, as determined by contractions of the spermatic cord when the cerebellum is mechanically irritated, by priapism when that organ is in a state of inflammation, and by the tendency of undue sensual indulgence to produce cerebellar inflammation. But the observations of others seem to discredit these suggestions and deductions, by showing that affections of a local or general character, — such as “softening of one of the corpora striata, one of the optic thalami, the anterior lobe, the middle lobe, a deep point in the white substance, a cerebral convolution,” and even “a whole hemisphere,” — have occurred, where there was “nothing in the pronounciation, in the derangement of movement in the arm or the leg ; nothing in the state of the intellectual functions,” which seemed to permit a suspicion as to the limits of the part affected.

Some have even tried in this way to cast discredit upon the whole science of *phrenology*. In opposition to the doctrines of phrenology it has been alleged that portions of the brain, represented to be the seat of certain mental faculties, have been destroyed, without in the least affecting those faculties. But since the brain is a double organ, and, consequently, each faculty has two organs, located in corresponding positions, one on each side of the mesial line, it is very easy to understand how the function in any case might be carried on by one organ after the other had been destroyed, just as one eye can see after the other has become blind. But even should both the organs assigned to a particular faculty be obliterated, and the mental manifestation of that faculty appear unaffected, the fact would not necessarily disprove the correctness of the phrenological hypothesis : for we may readily suppose that some kindred organs might assume and perform vicariously the function of the one which had been destroyed. Such substitution is not unfrequent in other parts of the system. The biliary, the renal, and other secretions, have been vicariously carried on after the proper organs have been destroyed, or rendered useless. The substitution in the brain of one organ for another, where the faculties concerned were very nearly alike, would present even less difficulty to our minds, than some of those adaptations of secretory organs to new functions.

Yet I do not believe there is any well attested case of a complete destruction of the same organ in both hemispheres, without disturbance of the mental faculties. Phrenologists have challenged the world to produce cases of the kind; and, although examples of extensive injuries have been brought forward with an air of exultation for this purpose, yet in every instance, so far as I have been able to learn, the results have, to some extent at least, sustained phrenology.

But to return from this digression, I will remark that this whole subject of the effects of inflammation upon different portions of the brain, and the relation, not only of different localities but of different degrees of inflammatory action, and of different anatomical characters,—such as softening, induration, &c.,—to the external symptoms, lies open for *research and investigation*. Very little of practical value has yet been determined,—hence, I will not detain you with the results of hitherto unsuccessful efforts, but would urge you to give your attention to this subject in the spirit of true friends of science and votaries of truth, bearing in mind that the most formidable mountain which presents a barrier to your progress, may yet offer you a “pass” through some hitherto undiscovered ravine; or at least that you may construct instrumentalities with which to scale its summit or tunnel its base, and explore the land of promise beyond.

The *causes* of inflammation of the brain are various. They are spoken of by authors under the ordinary divisions of *predisposing* and *exciting* causes. The predisposing causes are somewhat indefinite and unreliable. Age is found to have much to do with the predisposition to phrenitis,—children under two years of age, and persons between the periods of puberty and the decline of life appearing to be most liable to this affection. The liability diminishes after the second year until puberty, and again diminishes after about the forty-fifth year. A sanguine temperament, plethora, intemperance in eating and drinking, and excessive mental exertion, have a predisposing tendency to cerebral inflammation. It is most frequent in hot climates, also, and it sometimes prevails epidemically. It very rarely, however, occurs as a spontaneous or independent affection, but is not at all unfrequent

as the result of accident, or the attendant of general or local disease.

It is scarcely necessary to attempt a statement of the *exciting causes* of this affection, and yet a few remarks under this head may not be out of place. It is said that a sudden exposure to a draft of air will sometimes produce inflammation of the brain where there is a hereditary tendency or predisposition from other causes to this disease. I have seen cases caused by exposure to heat, and it is not improbable that cold may have a similar effect. Blows, concussions of the head, &c., are frequent causes of cerebral inflammation. But it more frequently occurs as the sequel or metastasis of some general or local disease, such as rheumatism, gout, erysipelas when located on the scalp, &c. A case of erysipelas recently occurred under my observation where there was a determination to the brain, which, had it not been promptly arrested, would most certainly have resulted in active inflammation of that organ. I need not repeat that some parts of the body remotely situated from each other, are more nearly related in nervous sympathy than others lying in contact or close proximity. Hence, as we might expect, the brain is often found to suffer from affections of the skin, stomach, bowels, &c. The tendency of cholera infantum to result in cerebral inflammation is a striking instance of this kind.

We come now to speak of the *Treatment*. In this, as in other grave forms of disease, the paramount question is in regard to the cause; for to attempt the treatment of a case without any knowledge of the cause, is like attempting navigation without chart, compass or landmark. Better leave the case to the powers of nature, unless you can gain such a clue to the cause and character of the difficulty as to avoid the risk of inflicting injury by inappropriate medication. This remark, however, applies with equal force to all forms of disease.

Though emetics are generally contraïndicated in this affection, from their tendency to determine the blood to the capillaries of the brain, as well as other portions of the system, yet, were I certain that the affection were connected with, or depended upon accumulations in the stomach, I should promptly evacuate that organ by an emetic; and in some instances this is about all that

is required. In the selection of an emetic to be employed under such circumstances, it is important to choose one that will operate quickly, thoroughly, and without prolonged or continuous, retching after the stomach has been emptied. I object, as a general rule, to impalpable powders, which are apt to become attached to the villous coat of the stomach, and keep up a state of irritation, which may be difficult of removal. I much prefer to give an emetic in the form of an infusion, and I know of no better formula than the one I have already mentioned on several occasions, embracing a combination of Lobelia and Eupatorium. As was remarked, emesis in this affection is generally regarded as inappropriate, and unless palpably required by the necessity of the case, it should not perhaps be employed. I think, however, that the objection to this measure, as generally urged, is rather assumed than real: at least, when I estimate the influence of an emetic on the brain and general system, I am unable to feel the force of the objection. In fact, the relaxing and sedative influence of an emetic is often very desirable in just such a case as the one under consideration. There is a temporary forcing of the blood into the whole capillary system, but the effect appears to me to be an equalization of the circulation rather than a special determination to the brain.

The next important indication is to evacuate the bowels, provided the cause and nature of the disease permit this measure. Cathartics exert a powerful influence in attracting the circulation from the brain by their derivative effect. Nor should we depend on mild cathartics; they should be of the active and thorough character. I have found our antibilious physic, not in sufficient doses to produce vomiting, to answer an excellent purpose. It should be repeated to the extent of producing thorough evacuation. You can in this way detract from the circulating mass, more than could be done by a full bleeding. The only argument in favor of bleeding is its immediate effect, but this is more than counterbalanced by the injurious consequences which follow the measure. You know that I have already abundantly shown that depletion by the lancet takes from the blood its vital element, fibrin, in a very large proportion, and produces an increase in the

serum, and thus renders it unfit for circulation in the minute capillaries. And you recollect that bleeding is not claimed to be generally a curative measure ; it is a mere temporary expedient, which I have sufficiently proved should never be employed.

Topical bleeding, by cupping the temples and nape of the neck, is not objectionable, but is often of great utility, affording relief by local depletion, while the quantity abstracted can inflict no serious injury on the circulating fluid. This measure may be repeated two or three times daily until the active symptoms are subdued.

Simultaneous with the means I have mentioned, you may, if deemed necessary, resort to the application of ligatures on the limbs in the manner described under the head of general treatment of inflammation. By this means you give much more prompt and certain relief to the engorged parts than could be effected with the lancet, and that without the loss of a drop of blood.

Another important means is that of cooling applications to the head. You will find in almost all your books the use of ice and ice-water recommended to be employed for this purpose ; but I much prefer a very different mode of management, and one based upon strict principles of philosophy. Cold applications serve to give momentary relief by benumbing the sensibility for the time, to be followed by a more severe reaction. But the application of warm water, has a calming, soothing influence upon the nervous system, and, from its more rapid evaporation, is far more effectual in reducing the temperature of the parts. I have seen that restlessness, so characteristic of inflammation of the brain, completely overcome, and the patient calmed down into a quiet sleep, from the application of warm water to the head, followed by a very gentle fanning to promote its evaporation. I was formerly in the habit of applying ice, cold water, cloths wrung out of cold water, &c., to the heads of my patients, but I find far better effects follow my present method."

Another potent and effectual means of diverting the circulation from the head is counter-irritation, by applying sinapisms to the extremities and spine. But this measure, to prove effectual, will generally need to be persevered in for some time. A single

application will frequently fail to do much good, but it should be repeated and thoroughly followed up until an effect is produced.

You may find it necessary to repeat the cathartic daily, for some days, or until the disease is relieved. Where inflammation of the brain supervenes upon a general debilitated condition of the constitution, resulting from protracted febrile or other disease, where depletion in every form is precluded, cathartics will, of course, be inadmissible. The bowels in such cases should be soothed by cholagogue aperients and enemata, the circulation equalized by the usual derivative applications, and the heat of the head kept down by the warm bathing already recommended.

Such is the course of treatment I would recommend in inflammation of the brain, and I have reason to believe that it will be found as successful as any other; much more so than the notorious and once popular remedy, blood-letting. The measure I have recommended for controlling the circulation is far more than a substitute for the lancet:—it is a more safe, prompt, and thorough means of relieving the engorged vessels of the brain, by locking up in the extremities the large mass of blood which they will contain, and holding it in reserve for the use of the system, when the present danger shall have been averted. The use of ligatures is by no means a far-fetched measure, the phlebotomist himself employs it to arrest the blood in the veins until he can let it out; and it is a measure which commends itself at once to the comprehension and apprehension of every intelligent and unprejudiced mind, as being, without doubt, more efficient than blood-letting.

The diet should of course be of the simplest kind. Indeed no other will be borne by the patient. Digestion being arrested, the appetite will not demand much food. The patient may take a little rice gruel or corn meal gruel, or similar light food, but probably nothing at all will be required during the active stages of inflammatory disease. During convalescence, the usual precautions and care will be requisite in order to conduct the case to a perfect recovery.

It is said in some of the books that this disease sometimes becomes chronic. Such may be the case when a disorganized portion has become isolated, as it were, by being surrounded by a cyst, where adhesions have formed between the layers of the

arachnoid, and where considerable effusion has occurred in the cavity of the latter membrane or in the ventricles, &c. If acute phrenitis degenerate into the chronic form, it generally presents a case of more or less stubborn insanity, which is to be managed according to the mode to be prescribed for that affection.

Chronic disease of the substance of the brain may however exist with symptoms of a very *obscure character*. I once saw a case of this description. The individual was an active business man, and extensively engaged in heavy pecuniary transactions, requiring protracted mental labor and much bodily exposure and fatigue. These circumstances predisposed him to cerebral disease, and under the force of malarial influence he became very much indisposed. The case was investigated by a number of physicians, all of whom, except myself, referred the disease to hepatic disorder. It was argued that the location of the patient in a malarious neighborhood, with some evidences of periodicity presented in the case, justified the diagnosis which regarded it as a clear malarial affection, having its seat in the liver. But while I readily admitted the presence of malarial influence, yet the fixed pain in the head, the peculiar restlessness of the patient, the imperfect capillary circulation in the extremities, and other symptoms not now remembered, convinced me that the principal disease was seated in the head. The individual would not be confined to the bed, nor even to his residence, but went to New York on a business trip, and on his return placed himself under my care; but he gradually sank and died. A post mortem investigation revealed the seat of disease to be in that portion of the brain to which phrenologists assign the organ of acquisitiveness. A large abscess had formed in the substance of the brain at that point. During the progress of the disease, though his intellect did not seem to be seriously involved, yet the acquisitive faculty was certainly for a time morbidly active, as shown in various ways, but more especially in the disposition of his estate.

I deem it proper to add, in this connection, that we occasionally meet with cases of neuralgic affections of the head very much simulating, in outward manifestations, the inflammatory affection of which I have been speaking. It will sometimes

require very close discrimination to distinguish these neuralgic attacks from phrenitis. They are however marked by symptoms of periodicity, which call for the appropriate remedy for periodic disease, so fully presented heretofore ; which should at once be administered without apprehending any injurious consequences from its use.

LECTURE XXI.

OTITIS: INFLAMMATION OF THE EAR, ETC.

Preliminary Remarks — Peculiarities of Otitis — Predispositions — Brain sometimes Involved — Causes — Treatment — Local Measures — Constitutional Remedies — Recipes — “Alteratives” — Associated with Malarial Fever — Case of Neuralgia. STOMATITIS: INFLAMMATION OF THE MOUTH — *Never Idiopathic — Symptoms — Causes — Treatment.* THRUSH: *Treatment — Condition of Mother — Idiosyncrasies — Nurse’s Prescriptions.* CANCRUM ORRIS: NURSE’S SORE MOUTH.

There is another form of disease which might be denominated inflammation of the brain, and to which I have before referred. But as it is generally associated with another affection, and pertains especially to infancy, it will be described under the title of cholera infantum. We shall therefore pass to the consideration of inflammation in other organs.

The next disease to which we will turn our attention, is OTITIS, or inflammation of the ear. This you may perhaps regard as an unimportant affection, and so it is, as compared with many others, but it is one which often causes very intense suffering; and the reputation of a physician often depends much upon his knowledge of trivial matters, and his ability to afford relief from pain, even where there is comparatively little danger. Yet even this affection, if neglected, or improperly treated, may result in serious injury.

This is a very *common disease* among children, though not confined to them, for it also occurs in adults; but it is important to be able to distinguish it from neuralgia, which is likewise very

common. If you make a mistake in this respect you will subject your patient to much unnecessary suffering and inconvenience. Inflammation may be distinguished from mere neuralgic irritation of the ear by the swelling which attends the former affection, and which may generally be discovered upon careful examination. The pain in inflammation is constant, while there is generally some tendency to periodicity in neuralgia, though this peculiarity is not always preceptible. But by using the speculum and inspecting the meatus auditorius, and membrana tympani, evidences of inflammation, if present, will generally be detected. The inflammation may be deep seated, involving the tympanum, or it may be confined to the meatus, and even to the outer portion of that, causing the orifice to be nearly or quite closed.

Some constitutions appear to be strongly *predisposed* to the disease, especially those of a scrofulous diathesis. It is also very frequently a sequel of other diseases, though it may occur without any evident connection with other affections. It is usually accompanied with more or less constitutional disturbance, which may hold the relation of either cause or effect to the local difficulty. I have known inflammation of the ear to follow exposure to cold sufficient to disturb the general system, and I have seen it occur without any general disturbance of the health. I have, however, seldom met with a case where the tongue was not slightly coated, indicating derangement of the stomach. In case of general constitutional disturbance, the pulse will be excited, and the skin hot; and I have seen well defined cases of intermittent fever with which inflammation of the ear was connected. In such cases as these, where the local difficulty is caused by the general disease, it will usually subside if the fever be promptly arrested. On the other hand, where the febrile reaction is a result of the local inflammation, your remedies must of course be directed more especially to the latter. Whether the inflammation is primarily dependent on derangement of the stomach, or results from sudden exposure to cold, checking the cutaneous transpiration, and destroying the equilibrium of the circulation, you will in most cases, as before intimated, find a furred tongue; the bowels are usually torpid; and the secretions generally more or less deranged.

In some instances the inflammatory action becomes so aggra-

vated and extended as to *involve the brain*, producing delirium, which it is important to bear in mind. When properly treated, otitis often terminates in resolution; but the most usual result is the formation of an abscess; and this often degenerates into a chronic affection to be hereafter considered.

Local injuries are very frequent *causes* of inflammation in this organ. Prompted by curiosity or some other unassignable motive, some children are strangely disposed to fill their ears and noses with foreign substances, such as pieces of paper, rags, peas, beans, and other seeds, which remaining some time produce inflammation. I have frequently been called to treat cases of this kind. This penchant it is sometimes difficult to overcome in a child. I was once called to a child that had the second time rolled up little pieces of cloth and forced them into its ear, notwithstanding it had, on the first occasion, experienced much pain from the local irritation and the operation of removing the pieces, and had withal been pretty severely chastised. But there are similar causes over which neither the child nor adult can always have control. I refer to the fact that bugs, flies, and other small insects occasionally creep into the ears, causing a great deal of annoyance to the patient and sometimes producing severe inflammation. Another very common cause is an undue or morbid secretion of the cerumen aurium or earwax. I have seen this the case a number of times, and to a very great extent. I recollect the case of an old man who gradually become deaf, but as it was not at first accompanied with much pain, he supposed his deafness to be the natural result of age. But finally it became really painful, and he came to me for an examination. I discovered by means of the speculum, that the ear was filled with this morbid secretion, in an inspissated condition, and succeeded in removing a plug of it, as large in circumference as my little finger.

Scarlet fever is a very common cause of otitis, and as a sequel to that disease it is often very troublesome. The communication between the tympanum and the pharynx, through the eustachian tube, will readily account for the phenomenon. The inflammation extends from the tonsils by continuous sympathy on the mucous membrane lining that tube, and thus reaches the drum of the ear.

In the *treatment* of this disorder, as in that of all other diseases, the first object to be accomplished is the removal of the cause that produces it. If it is occasioned by the presence of a foreign body in the ear, remove it. This, however, is sometimes difficult to accomplish, and your utmost ingenuity may be taxed to devise a successful method. The first case which ever gave me much trouble, was that of a child that had introduced a pea into its ear. The pea had become swelled very much, and the ear was so sensitive, that the slightest touch produced pain. I had recourse to all the measures which I remembered to have seen recommended in the books, without success. Among the numerous expedients recommended is that of introducing a probe tipped with stiff honey to which the object may adhere with sufficient tenacity to enable you to extract it. But it failed in this case, as the pea was so much enlarged, and the parts so much swelled, as to require more force for its removal than could be exerted in this way. It then occurred to me that water thrown forcibly against the tympanum, would, by its momentum, expel the pea. I tried the experiment and it succeeded at once. I have used the same means with invariable success in removing substances which had got into the ear, and also the inspissated secretion of the lining membrane of the meatus. Sometimes the substance is expelled with sufficient force to carry it some distance. The water should be thrown in by means of a small syringe, and should be repeated until the object is accomplished, though very often the first impulse will be sufficient. The syringe should have a slender pipe, and be so introduced as not to obstruct the passage. The water may be thrown in with considerable force. Having removed the exciting cause the inflammatory symptoms will indicate such further treatment as may be required.

In an ordinary case of otitis, *resulting from cold*, a thorough sweat, with warm applications to the ear, such as the steam of a decoction of hops, will usually give relief, unless the inflammatory action has gone too far. If there be general derangement, a moderate cathartic is indicated. For this purpose the seidlitz powders repeated every two or three hours will do very well; continuing in the meantime hot fomentations to the ear. Where there is much pain I have found tobacco smoke to afford

very prompt relief. It may be blown into the ear through the stem of a common tobacco pipe. The bowl of the pipe may be filled half full of dry tobacco ; which should then be ignited, and a silk handkerchief placed over it. By applying the mouth to this a stream of smoke may be blown into the ear of the patient with facility. This will generally afford temporary relief, but you must continue your efforts to reduce the inflammation and thus prevent a recurrence of the pain. A cup applied under the ear is very beneficial. A roasted onion put into and upon the ear is an excellent application. For the purpose of immediate relief from suffering, I have often dropped into the ear a small portion of the sudorific tincture mixed with sweet oil.

In cases where there is palpable *derangement* of the *stomach*, it is sometimes necessary to give an emetic ; and you may do more by this means, perhaps, in an hour, than would be effected by cathartics in a day. You will often find that the stomach has ceased its functions, is overloaded with irritating substances, and from its influence upon the whole system, certainly requires attention. A thorough emetic will relieve the stomach, equalize the circulation, and induce a free perspiration.

Inflammation of the ear often results in an *abscess*, and becomes chronic ; and, in this case, it may be very troublesome. You will meet with such cases, which are of long standing, and have been treated and given up by physicians, and success in treating them will often do much to establish your reputation as a practitioner. In these cases it will not do to depend upon either local or constitutional treatment alone, but both must be employed at the same time. The first local indication is to keep the part clean by daily washing ; and if the abscess be deep a syringe should be used for this purpose. Among the remedies I have used as a wash is an infusion of *hydrastis canadensis*, with a little myrrh to correct the offensive fetor. This wash excites the parts to healthy action, and it may be used every day, after cleansing the abscess with soapsuds. Sometimes it is necessary to open the ear with the speculum and touch the ulcer with nitrate of silver, or a solution of the sesquicarbonate of potash may be injected into the ear with a syringe. I have found this to be a very valuable adjuvant measure in the treatment of this form of the disorder. In

addition to the local measures just mentioned, I have been in the habit of making an issue at the back of the neck, which seems to substitute the long continued drain of the abscess upon the system.

The *constitutional remedies* will depend in some measure upon the idiosyncrasy of the patient. Where there is a scrofulous diathesis, indicated by a pale skin, an anæmic condition of the circulation, glandular enlargements, and perhaps chronic ophthalmia, it will be necessary to restore the general system to a healthy condition, before the local disorder can be removed. I have been in the habit of administering in such cases the following pill :

R. Sulph. ferri, Carb. potassa, $\bar{a}\bar{a}$ 3ij

Extr. taraxacum, q. s.

F. pilulæ xx.

Sig. 1 to 3 daily, according to age.

This pill supplies the deficiency of alkaline elements in the blood always existing in the strumous habit ; supplies, also, the material for enriching the blood in those elements requisite for active and healthy circulation in the capillary system, while it at the same time promotes healthy secretions in the liver, kidneys and other glands, and thus tends to eliminate noxious matter from the system.

In other cases, I have used with decided advantage our alterative syrup :

| | | |
|--------------------------------------|---|----------------------|
| R. Sarsaparilla, Yellow Parilla..... | } | $\bar{a}\bar{a}$ 3v |
| Burdock, Guaiacum Rasp..... | | |
| Sassafras Bark, Elder Flowers..... | } | $\bar{a}\bar{a}$ 3iv |
| Blue Flag | | |

Make into a gallon of syrup. See Eclectic Dispensatory, or Beach's American Practice.

The term "*alterative*," as applied to a medicine, may sound to you like a vague term,—and so, in one sense, it is ; for the profession are accustomed to employ it as expressive of therapeutic action which they are unable satisfactorily to explain ; yet it is by no means an unmeaning epithet, even when used in this way. It signifies a remedy that effects an alteration in the condition of the system. As just intimated, the mode of its operation may not be easily or entirely comprehended, though the beneficial results may be manifest. The most probable action of these med-

icines is to promote the elimination of unhealthy materials from the system through the secretions. They may, I believe, be strictly termed, stimulants of the secretions, and the alterative syrup possesses this property in an eminent degree.

I have used, also, in lieu of the last article, the *Compound Syrup of Stillingea*, and am favorably impressed by it, though my experience with it has been too limited to enable me to speak very confidently of it.

If inflammation of the ear be *associated with malarial fever*, your first object will be, of course, to arrest the fever; and when this is done the inflammation will subside without further attention, in almost every case where disorganization has not been produced. Or if it possess the neuralgic character, the treatment must be adapted to such an affection. You remember what was said on a former occasion, on the subject of neuralgia, and every form of masked ague. Although your remedies will be similar to those adapted to malarial fever, it is necessary to administer them in a very prompt and efficient manner, to overcome the neuralgic difficulty.

Speaking of *neuralgia* reminds me of a very interesting case which lately came under my notice. It is the case of a young man from Indiana, who during the fall was attacked with a pain in one of his eyes, accompanied by severe fever. His physicians called it congestive fever, and gave him calomel several times, bled him, cupped him, and applied blisters; but in spite of all these, the eye began to swell, the lid was turned outward, until finally it attained an enormous size; the ball became prominent and finally burst, and discharged its contents. The inflammation then disappeared from that eye. He soon, however, began to have pain in the other eye, and that too began to swell as the other had done. He was brought to the city, and placed under the care of a celebrated oculist. There he was salivated, and received other treatment, but with no advantage. Prof. Newton was then called, and he requested me to see the case with him. The lower lid was entirely everted, looking like a fungus growth upon the cheek, as large as a filbert. The eye was projected almost beyond the external boundaries of the socket, though the ball itself was not much inflamed. The pupil was permanently

dilated to nearly the size of the cornea, and the power of vision was gone. He could barely recognize slightly the impression of light on turning his face to the bright glare of a window. The pulse was small and frequent; the pain in the eye was severe all the time, but more particularly so in the after part of the day.

I became satisfied that it was a *case of neuralgia*, and advised the use of quinine and iron, as I have heretofore recommended for that affection in my lectures from this chair. I also advised the bathing of the eye with warm water, followed by a gentle motion of a fan. Under this treatment alone the swelling diminished, the eye sank back into the socket, and the lid returned to its natural position. The inflammation disappeared, and the function of the eye was gradually restored.

STOMATITIS—INFLAMMATION OF THE MOUTH.

I propose to occupy your time still further in the consideration of what may be regarded as minor diseases: I refer to the different forms of sore mouth. We sometimes meet with affections of the mouth which may not be properly regarded as inflammatory diseases, but which have a highly irritative character that assimilates them very nearly to this class of diseases; and there is, perhaps, no position in the arrangement we are observing, where they may be introduced with more propriety than under the head of inflammation. The same remark will apply to disorders of a similar character in other regions of the body, which will receive such attention when we come to treat of inflammation in those parts, as their importance may seem to demand.

I shall first speak, then, of *Inflammation of the Mouth*, or *Stomatitis*. You may, perhaps, think that I am going to consume time now with an unimportant disease, but your experience will be different from mine, if you do not find your patience, skill and ingenuity, as often and as greatly taxed by what may be regarded as trifling affections, as with those of a more formidable character.

According to my experience, inflammation of the mouth is *never* an *idiopathic* disease, for where it has not been caused by local injury,—as scalding, corrosion of the mucous membrane, or something of that nature,—I have always been able to refer it to some other affection of the system, of which the inflammation

was either a symptom or a result. It is very frequently a sequel of measles, or scarlet fever, or some other protracted disease of a febrile character, in which gastro-intestinal irritation is a prominent feature.

Symptoms.—The tongue in many cases has a speckled or striped appearance; some portions of the surface being covered with a white substance resembling curdled milk, while in spots or streaks the surface will be bare, and of a fiery red color. The white coat just mentioned does not lie loosely upon the tongue, but adheres closely, and is probably the epithelium in a deadened condition. In other cases the whole tongue will be red, smooth and glossy as a varnished surface, and almost destitute of moisture; while in others it will be equally red and smooth, but quite moist. Indeed, these appearances are not confined to the tongue, but may extend to the whole mucous covering of the mouth. In some instances, instead of the smooth surface, the papillæ will be so engorged as to produce prominences, giving the mucous surface a rough appearance.

These differences of appearance and condition of the mouth when inflamed, have always appeared to me to depend very much upon the state of the stomach and general system, as affected by other diseases, so that, as before remarked, I never regard it as an independent or idiopathic disease. In some cases, the inflammation not only occupies the whole surface of the mouth, but extends throughout the entire mucous membrane of the alimentary canal. As a general rule, indeed, you will find the tongue a pretty sure index to the condition of the stomach, and a diagnosis based upon its appearance is not very likely to mislead you. Thus, where the tongue presents a heavy coat, we are generally safe in concluding that there are accumulations producing gastric derangement; but if the tongue is red and clean, or nearly so, we may usually be sure that there is a similar irritated condition in the stomach, and you will find such an inference confirmed by tenderness in the epigastrium, upon pressure being made. But there is one condition of the tongue which may mislead you; and that is, where a heavy coat exists upon it while the membrane beneath is inflamed; its condition being hidden by the fur on the surface. This may be the case when there are no accumulations in the stomach or bowels, but it will gradually come off, leaving

the mucous membrane of the tongue, and perhaps other parts of the mouth, red and inflamed. I always suspect irritation when the coat has an unusually thick and scaly appearance.

Causes.—Inflammation of the mouth to a greater or less extent may *result* from local irritation, as where a scalding drink, or a strong acid or alkali has been taken into the mouth through carelessness or mistake. It may also be produced by carious teeth, which always throw out unhealthy and irritating secretions. Where the inflammation results from a local cause, it is seldom so severe as to produce much general febrile excitement; and will be amenable, generally, to appropriate local applications.

As to *treatment*, it is obvious that much will depend on the origin of the affection. If it be the sequel of scarletina or measles, very little need be done. Constitutional remedies will, mostly, be out of place; and your reliance must be upon a plain diet, and soothing applications to the mouth, and stimulating fomentations over the stomach. A decoction of *hydrastis canadensis* will be found an excellent remedy in such cases, for, though it does not possess astringent properties, it seems to exert a peculiar, I might say specific influence in allaying inflammation in mucous surfaces. Let a portion of the decoction be taken cold, into the mouth, and retained until a copious flow of saliva and a slightly stinging sensation is produced. In general terms it will be sufficient to say, that where the sore mouth is dependent upon constitutional derangement, such general treatment must be instituted as is appropriate to the condition of the system, and local applications should at the same time be employed calculated to give comfort to the patient, and allay local excitement. If the affection is caused by a local irritant of any kind, little or no general treatment will be necessary, except such as was before referred to; a simple diet and attention to the condition of the stomach and bowels, so as to prevent accumulations. Time will, generally, effect a cure in these cases, after the irritating cause is removed. Carious and snagged teeth should be removed, where these cause the difficulty, and the sound teeth cleansed from all accumulations of tartar. The solution of *hydrastis* or other soothing wash may aid in the cure.

There is another remedy which I have employed more than

any other in this and other forms of irritation of the mucous surfaces, especially where a tonic seemed to be indicated, as is usually the case, if the disease is a sequel to some form of fever. I now refer to the staphylea, of which I have spoken before. It acts as a pure tonic without producing the least irritation, even where the mouth and stomach are in a stage of inflammation. The infusion should be given three or four times daily in table-spoonful doses. You need not look for any palpable and immediate demonstration of its action, for its impression is so gentle and gradual that you may be led to question whether it is really entitled to any consideration ; but I have seen cases treated with and without it, and have clearly observed decided advantage in the cases where it was used.

THRUSH, OR INFANTILE SORE MOUTH. ii.

There is another variety, so to speak, of inflammation of the mouth, resembling that just considered in some measure, but peculiar to infants. It is usually called "THRUSH," and occurs in children from a few days to three or more months old. At the beginning of the affection, small white specks are first seen, not much larger than the point of a pin. It most frequently commences in little clusters of these points on the inner side of the under lip or cheeks, but it may begin at other places. These little clusters gradually spread until the entire surface of the mouth is involved ; the small points being magnified to the size of a pea in circumference. You will most generally find spaces throughout the mouth which are bare and red ; but I have seen cases where the whole surface was covered with the white coat, very much resembling milk curd. This I regard as deadened epithelium, and this conclusion is justified by the fact that you cannot wash it off ; but when it has remained long enough for another epithelial layer to be formed it will come off itself. But no attempt should be made to wash it off, as by doing so you will aggravate the inflammatory action. You would naturally suppose that the infant's mouth in such a state must be very sensitive ; but instead of this, there is very little soreness, even after the scurf comes off.

The affection is sometimes communicated to the breast of the

mother or nurse, which will become very sore ; and in some cases the nipple is nearly covered with what is called canker of the breast. This proves that the mucous secretions are vitiated and irritating. The inflammation often extends to the fauces of the child, and the pharynx, the esophagus and portions of the stomach and bowels have been found covered by this curdy coat, or in the inflamed condition following its separation from the mucous membrane.

The peculiar wisdom of practiced nurses seems to enable them sometimes to anticipate an attack of this disease, in the inclination of the child to sleep a great deal ; and such a condition may possibly generally precede the development of the affection. But any child that is healthy, and gets suitable nourishment, will, while very young, sleep most of the time, so that you need not always expect to find the development of "thrush" to follow this disposition to sleep.

This disease sometimes results from unhealthy milk, or from the overgorged stomach becoming deranged by the indigestion and fermentation of aliment taken in too large quantity. In short, whatever may be the extent of the disease, or the character of its other symptoms, you will always find evidence of an acid condition of the stomach and bowels, in the green color and peculiar odor of the evacuations. Where the case is very severe, the morbid condition seen in the mouth evidently extends to the stomach and bowels ; the anus will be red and excoriated, and portions of cast off epithelium are sometimes found in the discharges.

This form of disease may be considered, then, without doubt, to be dependent upon prior derangement of the stomach and bowels, and the *treatment* will be directed to this condition as presenting the first indication. The accumulations in the bowels must be removed by a gentle purgative, but in its administration remember that you are treating a delicate infant, and that all harsh or drastic medicines are to be avoided. Use only mild aperients, such as will remove the contents of the bowels, and at the same time neutralize acidity. I have found our neutralizing physic better adapted to these cases than any other. Combining, as it does, the properties of a cathartic, antacid and carminative, it accomplishes both the objects just named, and relieves the colic

pains so generally present in this condition. This medicine should be given in moderate doses every two or three hours, until a number of discharges have been produced by it, and then repeated daily to the extent of correcting acidity and keeping up a regular action of the bowels. Local applications are of little use, for while the derangement of the alimentary canal continues, they can have little beneficial effect. Too much "washing" of the mouth is very likely to irritate rather than cure.

Another matter of great importance in the management of this disease is the *condition of the mother*. You will find, in many cases, that the bad diet of the mother, producing an unhealthful quality of milk, is the origin of the difficulty. You will, of course, in such a case enjoin a suitable change; prescribing a simple and proper diet, and proscribing every thing calculated to produce acidity of the stomach. It cannot be disputed that the child will be affected by food or medicine taken by the mother. I have seen the infant actively physicked by its mother's taking a cathartic. We see this influence of the food on the milk illustrated in the lower animals. Who is not aware of the effect of leeks and other kinds of vegetables, on the milk of cows?

There seem to be some constitutional *peculiarities*, perhaps I might say *idiosyncrasies*, which cause the milk always to disagree with the child, so that it will never be healthy so long as it is kept at the breast, although the mother's health may appear to be perfectly good, and her diet wholesome and judicious. In such cases I have the child weaned or nearly so, substituting simple nourishment for the mother's milk, allowing the child to take very little of the latter, if any at all.

You will find among *nurses* a vast number of articles recommended as *washes*, such as privet or sage tea, honey, &c., any of which may perhaps be used with some advantage as a means of soothing the local irritation. It matters not much what is employed so that the child's mouth is not irritated by too much "swabbing." Where it is thought proper to use any thing, I find the infusion of hydrastis answer a better purpose than any thing else. Where the irritation has extended to the stomach and bowels, I have administered with advantage small doses of

salad oil, which is the purest kind of olive oil. If a rancid article be given it may aggravate the case.

CANCERUM ORRIS,—CANKER—APTHÆ—ULCERATIVE INFLAMMATION OF THE MOUTH.

We have another form of sore mouth not peculiar to children, but occurring at any age; I refer to *apthæ*, canker, or cancerum orris. This is an ulcerative inflammation of the lining membrane of the mouth. Some authors attempt to make a distinction between canker and apthæ, but in my view this is an impracticable attempt at refinement in description.

This commences frequently in a single spot, generally upon the tongue in a little blister, though perhaps the first thing that will be seen is a deep canker with irritated edges, varying from the size of a small pea to that of a dime in diameter. The surface of the canker has a yellow color and the edge red. In some cases the surface of the mouth is covered with these little sores; which are exceedingly painful. One sore will often produce more suffering than some very formidable forms of disease, though the general health of the patient may appear to be good.

The suffering must, of course, be much greater where the ulcers are so numerous. I have seen it so severe, that even water taken into the mouth produced intense pain, and it was almost impossible to swallow or move the muscles of the face. The affection not only extends sometimes, as was remarked, throughout the mouth, but into the throat as far down as you can see, and I have seen cases, in fact, where I had no doubt, the mucous membrane of the stomach and bowels was more or less occupied by similar sores; the discharges clearly indicated such to be the case.

This affection is invariably dependent on derangement of the stomach and bowels, especially the former, and will be relieved generally by *treatment* adapted to the correction of such derangement. In adults I have used the antidyspeptic pills, which do not induce watery evacuations, but merely free discharges of the contents of the bowels. Of course, then, they do not reduce the serous portion of the blood, but they will by one or two opera-

tions more thoroughly empty the intestinal tube, than would half a dozen operations of hydragogue cathartics; and so far as this disease is concerned this is an important consideration. For children, I have been in the habit of using our neutralizing physic, repeating it often enough to secure free evacuations. I have found some cases of both adults and children, where I thought best to give an emetic in the early stage of the difficulty, as by this means accumulations which evidently occupied the stomach could be at once removed, when it would probably have required a day or two to carry them off by catharsis; and I advise you, whenever you find the stomach evidently overloaded, to premise your other treatment by free emesis.

In many cases you will find the parts immediately involved in the disease so inactive as to require stimulation, before other local treatment will have much effect. A favorite remedy with me in such cases, is a gargle of common salt, pepper and vinegar. An infusion of the polygonum punctatum, or *smart weed*, is another excellent remedy, and one which I often prescribe. It has a stinging, pungent taste, followed by a comfortable glow of heat through the mouth. You may follow with the infusion of hydrastis, which seldom fails of producing an excellent effect. I have found a good influence, where there were but one or two cankers, from the use of burnt alum and loaf sugar, finely pulverized and applied to the sore, or the cankered spots may be slightly touched with the nitrate of silver.

I hope I shall be pardoned, gentlemen, for dwelling so long on these apparently unimportant affections, but I have so often seen cases most shamefully treated, by members of the medical profession, that I cannot feel that my duty is discharged until I shall have put you in possession of my views of their proper management.

NURSE'S SORE-MOUTH.

There is still another variety of sore mouth entirely distinct from all others. It is called the *Nurse's Sore-mouth*, and it is a difficult affection either to explain or treat. The symptoms are not as severe as those of some other affections of the mouth, still

it is the occasion of much inconvenience and suffering. This, too, is an ulcerative inflammatory affection, but the ulcers are not so deep-seated, but are seen in little patches, without much appearance of redness; and are very painful, owing to the exalted sensibility of the parts involved. Accompanying this affection there is, in severe cases, a general prostration of the vital powers; a pale, anæmic condition of the system; the lips will be pale, the extremities cold; and all the symptoms show a decided deficiency in the process of nutrition, and of the secretion designed for the support of the child. Yet it is remarkable that the child very frequently appears to be perfectly healthy.

The only remedy I have ever found for a severe case of this disorder is to wean the child. This will arrest the secretion of milk and allow the system to resume its nutritive function. Where the disease is not very alarming, much benefit may be derived from the use of tonics, to sustain the digestive function and improve the general tone of the system, even without entirely weaning the child. When the secretion of milk is arrested the catamenial discharge is very likely to return; and the female is liable to become pregnant again. This is an objection to weaning the child when it can be safely avoided; for the frequent recurrence of pregnancy and parturition, so common with females who do not nurse their children at the breast, does more to break down their constitutions than moderate lactation would be likely to do. Still, where the patient is sinking under this disease, it is better to take the child from the breast at once.

I have spoken of tonics to sustain the patient where it is not decided to wean the child. They will also be very useful in restoring the tone and energy of the system after the infant has been weaned. In either case quinine and iron form an excellent prescription, the former to produce healthy and vigorous digestion, the latter to assist in increasing the vitality of the blood. I have also found great benefit from the use of staphylea, and other mild tonics, and I have employed with good effect the infusion of hydrastis. This latter article will not only reduce the irritation, but will slightly move the bowels. Dr. H. D. Holt, of New York, states that iodide of potassium, given in five grain doses

three times a day, has uniformly cured this disease in forty-eight hours, so far as tested under his notice. Dr. R. Wilcox claims equal success with a wash made by boiling an ounce of the dried leaves of *polygonum punctatum* or *hydropiperhoides* (*smart weed*,) in a pint of water for twenty minutes, and applied to the affected part every hour through the day.

LECTURE XXII.

GLOSSITIS : INFLAMMATION OF THE TONGUE, ETC.

Description — Treatment. ANGINA : INFLAMMATION OF THE FAUCES — *Variety of Symptoms — Peculiarities — Causes — Treatment — Chronic form — Treatment.* TONSILLITIS : INFLAMMATION OF THE TONSILS — *Symptoms — Local — General — Terminations — Chronic — Prognosis — Cause — Epidemic — Treatment — Strictures on Calomel and Lancet.* ŒSOPHAGITIS : INFLAMMATION OF THE ŒSOPHAGUS — *Symptoms — Treatment.*

There are other modifications of disease of the mouth in addition to those mentioned yesterday, which are described by many authors as distinct affections. But I have found them so uniformly presented as mere modifications of the diseases which I have described, and so constantly wanting in diagnostic symptoms, by which independent disorders should be distinguished, that I believe it would be a waste of time to detain you with their consideration, especially as no indications of treatment, differing from that already described, would be suggested by their separate consideration. There is, however, one other affection of this region, to be met with occasionally, which deserves our notice. It is

INFLAMMATION OF THE TONGUE, OR GLOSSITIS. This is rather a rare disease, and perhaps you may practice for years without seeing a case. I never saw but one instance, and that resulted from the administration of mercury under peculiarly objectionable circumstances, and was attended with a train of symptoms having the same origin, which nearly destroyed the patient's life. This is a very painful and distressing disease. It commences with

severe throbbing and pain in the tongue, usually accompanied with considerable constitutional disturbance. The tongue becomes swelled, hot and dry, and rapidly increases in size; and in severe cases it becomes so large as to protrude beyond the lips; and sometimes occasions a sense of suffocation. The case to which I referred, you will find correctly described in Dr. Beach's work; his representation of the case is fair, and not in the least exaggerated. In that case the tongue was so much swelled that it protruded from the mouth and lay upon the chin, as large as a man's fist. There was constitutional disturbance, a rapid pulse, hot skin, and occasional delirium. The patient was a ship-carpenter; he complained of slight indisposition, went to a physician, who pronounced his disease to be an affection of the liver. He still went about his business, but was put upon a course of blue pills, one every night, perhaps. His tongue, after a short time, began to swell; and before I saw him, he had been bled, leeches, and blistered, but got worse and worse under the treatment, until his life was despaired of. Dr. Beach was called to see the case, and I went with him.

I can readily conceive a case of general constitutional debility in which a local irritant might give rise to this affection, but without such constitutional predisposition, I certainly should not expect to see such a degree of swelling and inflammation of the tongue. During a series of twenty-five years' practice I have seen but this one case, though I have seen a large number of instances where local irritation produced a moderate degree of inflammation of the mucous membrane and papillæ of the organ. Yet it is said by authors that hot fluids taken into the mouth, corrosive substances, wounds, bruises, &c., have produced *inflammation* of the *substance* of the tongue, or proper *glossitis*.

The *treatment* in this case, as in other inflammations, will depend, of course, upon the cause. If produced solely by a local irritant, little else need, or can with advantage be done, except the application of mild, soothing agents, locally, and keeping the general system in a laudable condition, by diet and gentle aperients. But where the disease originates in derangement of the stomach and bowels, an emetic or cathartic, or perhaps both, would be indicated. In the case referred to, where the tongue

was so enormously swelled and so highly inflamed, it was treated by free hydragogue purgation, and an elm poultice applied locally, and the difficulty wholly disappeared under this treatment.

In very severe cases I should have no hesitation in applying cups under the jaws, which would have a very different influence from that of general bleeding. I should expect to relieve, in a measure at least, the local engorgement, by bleeding topically; but the abstraction of a quantity of blood from the general circulation, sufficient to make an impression, would, in this as in other forms of inflammation, increase the local difficulty, as well as debilitate the general system.

ANGINA, OR INFLAMMATION OF THE FAUCES.

We will next consider inflammation of the fauces, which occurs under various forms and with different degrees of intensity, all of which are embraced under the general term *Angina*, a word derived from the Greek, and signifying to *strangle*.

We might, perhaps, without much impropriety, comprehend in this class, a disease very closely allied to it by location and character, namely—tonsillitis, or inflammation of the tonsil glands; but this last named disease has some peculiarities connected with its symptoms and treatment, which seem to entitle it to a distinct consideration.

The disease of which we are now to speak is usually called *sore-throat*, without swelling. There may be some swelling, it is true, but not so much as in *tonsillitis*. It usually comes on without any premonitory symptoms. The first thing to create suspicion is a slight soreness upon swallowing. This gradually increases until swallowing becomes painful and difficult. Upon examination, redness will be perceived in the whole surface of the fauces, involving the uvula, the velum pendulum, the lateral half arches, and surface of the tonsils.

This disease presents a considerable variety of appearances. In some cases the color is a bright red, in others a dark livid or purple. Each of these appearances will require different treatment. In some instances the uvula is very much inflamed and elongated. I have frequently seen it so much elongated as to touch and even lie upon the tongue, producing a constant tendency

to swallow and an incessant hacking cough. At first, there is a sensation of burning, or dryness, at least, in the fauces, which is soon followed by a profuse secretion of mucus, requiring to be constantly discharged. The dryness and soreness are increased during sleep. The inflammation is not always confined to the boundaries of the fauces, but frequently extends not only into the pharynx but also into the larynx, trachea, bronchial tubes, and lungs. It is, indeed, no uncommon occurrence, that inflammation of the lungs proceeds from simple sore throat; but where this is the case, it is accompanied by general disturbance, such as derangement of the glandular secretions, dryness of the skin,—in fact, all the ordinary symptoms of febrile reaction. This is especially the case in this country, and here too, nothing is more common, than for this fever to possess a periodical character.

Another peculiarity of this affection is its tendency to assume the character of chronic sore throat; which when neglected is apt to extend to the larynx, producing what is popularly called bronchitis, but which should be called laryngitis. You will usually, too, find the whole surface of the posterior part of the mouth, with the soft palate and uvula, involved in the chronic affection. In some cases, even where the inflammation has not extended to the larynx, the irritation, produced by the elongated uvula, keeps up a constant coughing, as if the disease had reached the lungs. I have seen cases where it was thought the patients were going into consumption, where this condition of the uvula was the only difficulty. This peculiarity is some times of great importance in forming a diagnosis.

This disease, does, however, often form the primary manifestation of a train of symptoms, which will progress from one degree of morbid action to another, if not arrested, and finally result in fatal disease of the lungs. Such is much more likely to be the tendency, where there is a scrofulous diathesis.

The most frequent *cause* of this disease is derangement of the stomach. Even where it appears to be produced by a slight exposure, careful examination will almost always trace it to gastric disorder as the proximate cause. In fact, most of these local difficulties, affecting the mouth, throat, &c., are connected with a deranged condition of the stomach. Where the affection

becomes chronic it is apt to have connected with it the apthous condition of which I have before treated. Angina may also result from local irritation, such as the action of acids or alkalies, or hot fluids, swallowed carelessly or by mistake; but as before stated, it most usually accompanies derangement of the stomach produced by cold.

In the *treatment* of this disease, as of others, the first thing to be taken into consideration is the cause that produced it. If the stomach is deranged you must correct this condition; and perhaps there is no other disease to which emetics have been applied so often without relief as the one now under consideration. This is because the present condition of the throat is not entirely dependent on gastric disorder, although that may have been the cause of it; but the inflammatory action having been established in the fauces, it may persist after the stomach has been relieved by an emetic; and may, indeed, be aggravated for the time being by the irritating effect of the remedy. But though an emetic is not likely to produce immediate relief, it is generally useful in removing that obstacle to the cure which much exist so long as the producing cause continues. But whether you administer an emetic or not, a hydragogue cathartic is decidedly indicated. It acts locally as well as generally, removing accumulations from the stomach and bowels, and at the same time exercising a beneficial influence on the general circulation. If there were not connected with the case, derangement of the stomach, I would not recommend an emetic, of course; but if one appeared to be indicated, I should give the lobelia and eupatorium. As a cathartic, our antibilious physic, given to the extent of producing free evacuation of the bowels, is well suited to most cases.

Where the inflammation is connected with cold, a thorough sweat should be induced either before or after the cathartic; and if the skin is dry, with considerable febrile reaction, the patient should be put to bed, and his throat steamed, which will generally be followed by immediate relief. The application of a hot fomentation to the throat is an excellent measure, allowing the patient at the same time to inhale the vapor of the fomentation; through the spout of a coffee-pot or tea-pot. If the case is very severe, involving the whole surface of the throat, local cupping

under the angles of the jaws may be employed, often with marked success.

After a thorough evacuation of the bowels, they should be kept open by the use of gentle aperients. The seidlitz powders is a pleasant drink, cooling and grateful, and, if given so as to produce a gentle cathartic effect, may be recommended as fulfilling all the indications of general treatment at this stage of the disorder.

You will observe that in this form of inflammation of the throat I have not mentioned gargles. I have omitted them for the very best of reasons, that I do not consider them beneficial in active inflammation. I have found them to aggravate the symptoms. But there is another form of sore throat where the astringent and stimulating gargles are essentially important, that is, where the surface is more or less covered with cankers and where it presents a dark or purple appearance. They have the effect in such cases of throwing off the almost coagulated mucus which has collected, or the deadened epithelium that has formed. I have used in such cases a gargle formed by adding common salt to an infusion of cayenne pepper. In this case, now, an emetic is of vast benefit, being generally followed by immediate relief, and by repeating the emetic a few times the relief will be permanent. The emetic before mentioned I prefer to almost any other.

I have met with angina complicated with periodic fever. Where this is the case the general principle which I have heretofore established should govern your action. The antiperiodic remedies should be introduced in connection with the treatment I have just been recommending. There is no necessity for delay in regard to either class of remedies; both may be given together. In doing this you tend to remove both difficulties at once. If the fever were the paramount difficulty, I should expect the local affection to disappear as it subsided, but generally you will find that this form of local disease is not entirely dependent on the fever. On the contrary, the local inflammation may have produced a sympathetic fever, which, by depressing the vital energy of the system, has predisposed it to yield to the malarial influence, and thus the periodic character has been developed. In such cases the treatment should of course be directed to both

causes, that is, the inflammatory and malarial; and in no case will the use of such combined measures be attended with disadvantage.

You will find in the authorities a thorough *bleeding* recommended for this simple form of inflammation, and it is certainly very remarkable that this heroic measure should be advised in this simple disease, thus inflicting an injury upon the constitution which may last for weeks, months, or years, for the purpose of relieving a local difficulty, which, in a large number of cases, will pass off in a short time without any treatment at all. It appears so absurd that one would doubt whether any rational practitioner would adopt the treatment, however strongly recommended, yet I have so often known it to be done, that I cannot but speak of it here, with a deprecating admonition.

Where it has run into a *chronic* form, and become a mere local affection, you must rely mainly on local remedies. If the uvula is elongated, the application of a stimulating astringent, or of nitrate of silver will have a good effect. But you will find cases where these means will not be sufficient. In cases of such obstinate character I have sometimes been under the necessity of excising the uvula. This is done with the uvula scissors, and is a very simple and safe operation, unless by cutting too deep you produce hemorrhage by severing an artery, which is unnecessary and easily avoided.

In cases where the fauces and posterior wall of the pharynx present a granulated appearance, the application of a solution of nitrate of silver, say 40 or 50 grains to the ounce of rain or distilled water, applied every other day with a probang will be found a very efficacious remedy.

When the disease has become chronic I have said your chief reliance will be in local remedies; but you should not depend on them alone. The condition of the stomach should be attended to. There is often a dyspeptic condition of the stomach with torpor of the bowels which should not be overlooked. You will often find also extreme emaciation and an anæmic paleness in persons afflicted with inflammation of the fauces, in which case the anti-dyspeptic bitters is, according to my experience, of great service, in regulating the bowels, promoting digestion and stimu-

lating the secretions. This should be given to the extent of producing a free evacuation of the bowels every day, and with the local treatment, is generally sufficient. But if there is a red tongue and irritable state of the stomach and bowels, it will not be proper to administer the bitters, even though there is general debility. In such cases a soothing tonic treatment is to be preferred, and I have found diluted ale, given in small quantities, a useful and unexceptionable remedy under such circumstances. It should not be given so freely as to produce its general stimulating influence, as that would aggravate the irritation. Connected with this, a general tonic, such as an effusion of the staphylea, should be employed. Especial attention should be paid to the diet. A plain, simple and nutritious diet should be recommended, while all irritating and stimulating articles of food should be proscribed. Very little animal food should be allowed,—not that animal food is indigestible—it is more easily digested than vegetable,—but it is more stimulating, and on this account is objectionable in these cases. Rice, bread a day old, hominy, and similar articles, which can be obtained without difficulty, may be used. A little lean and tender mutton or chicken may be permitted, but all oily animal food, and highly seasoned or rich pastries, hot bread or biscuit (which are not in fact suitable food for a healthy man) should be imperatively proscribed.

TONSILLITIS—INFLAMMATION OF THE TONSILS.

We will next take up the subject of Inflammation of the Amygdalæ or Tonsils. The most appropriate synonym of this inflammation is *Tonsillitis*; it has also been called *Cynanche Tonsillaris*, *Angina Tonsillaris*, *Amygdalitis*, and in common language, *Quinsy*.

The inflammation in this disease may be confined to one of the tonsil glands, during its whole progress, but most generally both glands finally become affected. In a large majority of cases, one gland is first affected, and, after the inflammation has proceeded to resolution, it appears to be transferred to the other, though in some instances both glands are attacked simultaneously.

Although inflammation of the tonsils presupposes derangement of the general system, and especially of the stomach, yet the

symptoms of such derangement are often so obscure at first, as scarcely to admonish the patient of any indisposition, until a slight soreness of the throat and difficulty of swallowing is recognized. At this stage of the disease, without careful examination it will be mistaken for angina or mere superficial inflammation; but by careful observation a marked difference will be perceived between the last mentioned affection and tonsillitis, in which the substance of the gland is inflamed. It is true that in this disease the surface will present the flushed appearance, and most of the symptoms will coincide with those described in inflammation of the fauces, but, in addition to these, tonsillitis will present diagnostic symptoms arising from the structure of the glands being involved.

The voice in tonsillitis will be sensibly changed to a nasal tone, while in angina it may not be affected at all. In the one case it exhibits palpable evidence of physical obstruction, while in the other, if altered at all, it is owing to the dryness of the air passages merely. The glands often swell enormously, and if both are involved they may touch each other, and occasion entire inability to swallow, and render it difficult if not impossible for the patient to speak. I have seen cases where a word could not be uttered by the patient. Liquids are as difficult to swallow as solid substances, because the stiffness of the fauces and swelling of the glands nearly or quite prevents the act of deglutition, by which food or drink is received into the pharynx and forced into the œsophagus. The swelling sometimes produces a sense of suffocation, which gives much alarm, and is hence an urgent symptom, although not likely to prove actually fatal. Yet it is not difficult to imagine a case in which death might occur in this way.

It is usual for contiguous parts to become involved in the inflammation. The uvula is often swelled, edematous in appearance, and elongated so as to be in contact with the tongue, or lie upon one of the tonsils. A very common symptom in the early stage, is more or less pain in the ear, owing to the connection existing between the throat and the ears through the medium of the eustachian tubes; and the obstruction of these tubes very often, also, causes a partial loss of hearing for a time; or there may be merely a roaring in the ear on the side of the affected gland.

Accompanying these *local* symptoms will be usually more or less *constitutional derangement*. The tongue is uniformly found thickly coated, and with it an excited pulse is always present, and there is general disturbance of all the secretions. The urinary secretion is deranged, the skin is dry and the bowels torpid, in short, the palpable symptoms of febrile reaction are frequently associated with the local difficulty; though I have seen cases where the general system seemed to sympathize but very little.

Though fever is a usual symptom, it will most generally be sympathetic,—a fever of irritation, such as often occurs in other inflammatory diseases; yet you may find sometimes the local disease preceded by fever, which fever may be the principal source of the difficulty. Hence the importance in all diseases, and especially in those of an inflammatory nature, of learning the minute history of the progress of the symptoms, in order to determine the causes that produced them. This fever connected with tonsillitis in this country, is generally of the periodic character, and I have seen the inflammation immediately subside, on the arrest of the fever. A chill usually precedes the inflammation, attended with most of the other premonitory symptoms observed in the initiatory stage of ordinary bilious fever; such as pain in the back and limbs, indisposition to exercise, coated tongue, &c. In other cases, however, as I remarked in the outset, little or no premonitory symptoms precede the attack, and very extensive inflammation is sometimes known to exist, without any important constitutional symptoms; the difficulty being merely local, depending on a slight cold, or derangement of the stomach.

This form of inflammation more frequently, perhaps, than any other, *terminates* in abscess; fortunately, however, abscess in this case is not so much to be dreaded as in some others; as patients often recover very rapidly after the discharge of the abscess, without any unpleasant consequences resulting from the diseased action. I have however often seen it terminate in resolution. In some rare cases it terminates in sloughing. When this is the result you may see, by examining the tonsil, a gray spot which gradually extends until the whole surface of the tonsil is occupied by it. It will present the appearance of a slough, which will

finally come out, leaving a deep ulcer. The ulcer will readily heal, and the patient be relieved. Whether it terminate by sloughing or by abscess, as soon as the matter is discharged the patient rapidly recovers. I have seen cases of extensive abscess, where, upon the discharge of the pus by bursting or by lancing, the patient was relieved in two minutes, and suffered little further inconvenience.

But it is a very common occurrence for the disease to take on a *chronic* character, which can scarcely be called inflammation, in which there seems to be an unnatural enlargement; and this scarcely ever changes without both general and local treatment, and sometimes the removal of the gland becomes necessary. Such is apt to be the case where the disease occurs in a person of the scrofulous diathesis. In fact scrofulous persons are much more liable to inflammation of the tonsils than any others, and it is thought by some to be a disease peculiar to persons of that habit.

The *prognosis* may be put down as decidedly favorable. I have never seen a case prove fatal from this disease itself or from a disease reflected from or growing out of it. Yet it might reasonably be supposed that death could be produced by suffocation, caused by swelling of the glands and surrounding parts to such an extent as completely to obstruct the air passages. In some cases the larynx becomes involved in the inflammation, and then it is much more urgent, and more to be dreaded; and it will of course require more prompt and efficient treatment. Where suffocation is imminently threatened, the only resort is to open the trachea and thus produce an artificial aperture for respiration until the inflammation can be subdued.

Tonsillitis is perhaps more frequently *caused* by a change of weather, than is any other form of inflammation. A person predisposed to the disease will be apt to take it by sitting where a draft of cool air passes through a window. I would rather have my whole person exposed to severely cold weather, than sit where a draft of air from a window would strike only a part of the body, and thereby disturb the equilibrium of temperature in the system. Hence persons predisposed to this affection should be forewarned not to expose themselves in this manner. Derangement of the stomach, and in fact any cause calculated to impair

the health, may produce inflammation of the tonsils, where there is a predisposition to disease in these particular glands. The same thing is true of all other diseases; where there is a peculiar liability to a disease, very slight changes in temperature, food, or other circumstances, will often develop it, while other constitutions will withstand great exposure to morbid influences without being in the least affected.

We sometimes encounter this disease as an *epidemic*, more especially during the prevalence of scarletina. It is, indeed, often complicated with scarlet fever, and forms one of the most troublesome symptoms connected with that disease. But independent of scarlet fever, at such a time you will hear most of the people in the neighborhood, perhaps, complaining more or less of sore throat. Every disease that occurs during the prevalence of tonsillitis as an epidemic will be somewhat modified by it, and especially if it be a disease tending to affect the throat like scarletina, the influence of tonsillitis will be the more aggravated.

In regard to *treatment*, I may remark that much traditionary, and I may add, visionary lore is to be found in the books, and but very little information of real value. If you are called at a late period of its progress, you can hardly hope to arrest its course. It will very generally terminate in abscess; though the more mild cases will tend to resolution even without treatment, and in such cases this termination may be favored by judicious measures. But generally, I say, it will result in suppuration if not arrested in the early stage; and whatever measures you may employ, however active your depletion by the lancet or otherwise, you will under these circumstances be disappointed, if you expect by such means to arrest it. You may modify its violence, perhaps, and give temporary ease to the patient, but you cannot cut it short, as you might have done in the early stage.

When you have an opportunity to treat a case of this disease in the early stage, you will, of course, obtain as far as practicable a general knowledge of the cause of the attack, and condition of the patient. In a large majority of cases you will find derangement of the stomach, and you should then administer an efficient emetic, and repeat it three or four times if necessary. In the early stage of the disease, before the inflammatory action has proceeded

far, especially, if there be not a strong predisposition to suppurative inflammation in these glands, it may be arrested at once, and I know of no measure more efficient for this purpose than an emetic. Following this should be given an active cathartic, for in connexion with derangement of the stomach, the bowels will contain vitiated accumulations that should be removed. With these means, given with a view of arresting the disorder, you will find an excellent adjuvant in the application of a cup to the side of the throat; for you will readily perceive that the sudden abstraction of blood from the vessels in such close proximity to the inflamed part would tend to give present relief. I have seen this means followed, in many cases, by the most satisfactory results. This may be followed immediately by a soft soothing poultice;—one of roasted onions is valuable in such cases, exerting its antispasmodic, with its emollient, relaxing influence. After the stomach and bowels have been evacuated, keep up a mild action of the bowels during the whole progress of the case. To fulfill this indication the seidlitz powder is as good as any thing else; it carries off the watery portion of the blood, without diminishing its important vital elements, or interfering with its free circulation in the capillary vessels. This should be repeated often enough to produce two or three daily evacuations.

Where you find your patient restless and uneasy, an important means of relief for this irritability will be found in our common diaphoretic powder, taken every evening before going to bed. This article combines all the anodyne influence necessary for the purpose, with efficient diuretic and diaphoretic properties. It secures to the patient nights of quiet, comfortable rest, so very desirable in every disease, but especially where, as in the present case, there is much irritability and restlessness.

Another means that may be applied frequently, during the progress of tonsillitis, is the fomentation of bitter herbs, a very comforting prescription at any rate, if not positively curative. It seems to relax the parts, and produce a more copious secretion of mucus, and probably exerts some discutient influence. The patient may also derive benefit from inhaling the vapor of a decoction of bitter herbs, such as tansy, wormwood, motherwort, &c. This may be done three or four times daily.

I have rarely seen any benefit result from the use of gargles in this disease, except under peculiar circumstances. Where the tonsils are covered with canker, or where they are of a dark purple color, a stimulating gargle is certainly indicated; but gargles should not be used without discrimination as to the character of the affection. When there is a high state of inflammation, a stimulating gargle will be sure to protract the case, but where there is a want of activity in the part, as indicated by the appearances just mentioned, a gargle of salt and pepper heretofore described will excite the capillary circulation in the surrounding parts to healthy action, and, perhaps, afford permanent relief to the patient; hence, as long as this inactive condition continues, the gargle should be repeated several times a day.

Where there is, attending the local affection, fever of a remittent character, the first object will be, of course, to overcome the febrile disease. The history of the case will determine whether or not the fever is the cause of the inflammation. If the fever preceded the inflammation, and present the periodic character, you should at once administer the antiperiodic remedies. I have seen many cases of inflammation of the tonsils promptly relieved by this treatment where it was associated with periodic fever. Or, if the fever be continued without remission, but you have reason to believe it to have a malarial character, you will be perfectly safe in giving the quinine and iron, for they never aggravate any form of inflammation.

With the course of treatment now described you will be able, if called early, to arrest a large majority of cases. But if you are called after the disease has past the point at which it can be arrested, you will have to palliate the case as well as you can, keep up a free action of the bowels, and perhaps it may be necessary to administer an emetic. If in the progress of the disease you find ulceration to be inevitable, you must wait for this to occur. You can readily determine the existence of matter as in other cases by the fluctuation, or peculiarly soft, yielding, condition of the gland; and if there is an accumulation of pus, you may save your patient, perhaps, twenty-four hours of suffering by discharging it with a lancet or sharp pointed bistoury; but in doing this you must carefully avoid wounding the mouth by pas-

sing the finger along with the instrument, or by muffling it to within a short distance of the point, and holding down the tongue with a scapula or spoon handle. When the abscess is discharged the patient generally recovers immediately. I have however seen cases where the deep ulcer seemed to shoot out unhealthy granulations, which had to be touched with the nitrate of silver before cicatrization would occur.

You are aware that the authorities recommend in almost all cases of inflammation the free use of *calomel* and the *lancet*. These agents may, in reality, be said to constitute the sheet anchor of the Old School segment of the medical profession. You know my views, gentlemen, in regard to the use of the lancet in inflammatory disease. I have endeavored to lay down a plan of treatment, founded strictly on the laws of physiology, for the cure of inflammation, in general, and the principles I have endeavored to establish in reference to this subject, are perhaps as clearly elucidated in the management of tonsillitis, as of any other form of inflammation.

My former partner, Dr. D. CASE, was subject to inflammation of the tonsils, and I treated him successfully a number of times, while he was a student, and suppuration occurred only once or twice. While he was at college, one of the professors told him that he could not only cure the disease, but prevent its recurrence. He submitted to the treatment proposed—was bled twice, cupped thoroughly, took calomel and antimony,—but onward marched the inflammation, in spite of all these means. Not only did the professor fail of preventing the case from running its full course, but he utterly failed, also, in protecting his patient from a recurrence of the disease, as he had promised. On the contrary, the disorder recurred more frequently, and more severely, and it was a number of years before he recovered from the injurious effects of the treatment,—being a person of scrofulous diathesis. He continued to have attacks of tonsillitis in much more frequent succession than formerly, going on uniformly to ulceration. I have seen a number of instances in which the evil effects of this plan of treatment were illustrated in a singular manner, irresistibly producing the conviction in my mind, that any attempt to reduce this form of inflammation by such measures must prove a failure.

I have already said that inflammation of these glands often degenerates into chronic enlargement, or what may be called an unnatural growth, with but little other symptoms of inflammation, and you will find cases of this description difficult to treat. You should not be too sanguine of success, or you may disappoint both yourself and your patient. In many cases it is utterly impossible to remove the difficulty, especially where there is a strong tendency to scrofulous disease. Yet I have, in many such cases occurring in children, succeeded in entirely removing the difficulty. The treatment in these cases must consist of a general course of constitutional treatment, adapted to change and remove the scrofulous diathesis, which will be fully presented when I come to speak of tuberculous disease.

ŒSOPHAGITIS: INFLAMMATION OF THE ŒSOPHAGUS.

I have seen but one case which could properly be called inflammation of the œsophagus, and it may be regarded as a very rare disease. I have often met with cases of irritation of this organ, but not of inflammation.

This disease may affect any portion of the tube,—the upper, middle, or lower; and it may involve either the mucous membrane alone, or extend to the sub-mucous cellular structure, and even to the muscular coat. The case to which I refer involved, finally, the whole tube, and terminated in gangrene. It was of a chronic character, and had existed a number of years. The individual had some years previously had an attack of scarlet fever, and the inflammation of the œsophagus was a sequel of that disorder.

The symptoms are, a sense of heat and pain, aggravated by swallowing either liquids or solids, especially the latter. The patient will point out the location of the disease by referring it to the region of the larynx, or lower in the throat, or perhaps to the back or lower part of the chest. In the case to which I have referred, the patient was able to tell the moment when any substance which was swallowed passed the location of the disease, until the entire tube became involved. If the inflammation is in the upper part, it may be easily recognized by pain on external pressure. Nausea and vomiting are early symptoms in its pro-

gress, and the matter discharged from the stomach is peculiar in appearance, having a clear mucous character; and, what is remarkable, the tongue may not be coated, nor the appetite much impaired. Even to the last stage, food was relished as usual by the patient to whom I have referred, though this cannot certainly be regarded as a type of active or acute œsophagitis. In the early stage there is but little fever, though as the disease progresses the febrile symptoms increase, accompanied by a general derangement of the secretions. The skin is dry, and fails to perform its functions. In the latter stage the vomiting will be of rather a shreddy character, instead of mucous, occasionally mixed with small dark specks.

It may be *caused* by mere local irritation, or extension of inflammation from contiguous parts,—as from the pharynx or larynx above, or from the stomach.

It is so very rare that but little can be said of its treatment. The general course of treatment for inflammation, already fully described, will suggest the proper mode of management for this affection. The individual of whom I have spoken, was treated by a number of physicians, but with no benefit. If the inflammation is high in the œsophagus, the application of warm fomentations might be of service. I should not administer an emetic, for I should expect it would aggravate the symptoms. The administration of saline cathartics and cupping over the seat of the disease, are about all that can be done to advantage in this affection. Under certain circumstances it might be advisable to pass down a probang, for the purpose of applying a stimulating wash, such as a solution of nitrate of silver. The diet should be of the most simple farinaceous character.

LECTURE XXIII.

GASTRITIS—INFLAMMATION OF THE STOMACH.

Subject defined—Division—Acute Gastritis—Generally secondary—Symptoms—Local—General—Favorable and Unfavorable—Of Disorganization—Duration—Modification—Pathological relations—Redness of Mucous Membrane—Legal investigations—Causes—Treatment.

The subject for consideration this morning is INFLAMMATION OF THE STOMACH or GASTRITIS. Under this head I shall not consider that form of inflammation of the organ which has its principal seat in the peritoneal coat, as that will be comprehended hereafter in the consideration of peritoneal inflammation. The disease now to be described, therefore, is located in the mucous membrane of the stomach; and yet it is scarcely possible to conceive of inflammation as existing in this membrane without involving to some extent the cellular tissue at least, if not the muscular and serous tissues of the organ. Indeed we do find in almost every case of active inflammation of the mucous surface of the stomach, that the disease extends to the submucous cellular tissue and sometimes even to the others also. Yet it is by no means difficult to distinguish between the particular form of inflammation now before us, and that which is located specially in the serous coat, as will be abundantly shown before we shall have done with both subjects.

We shall consider gastritis under the two heads of *acute* and *chronic*. There is perhaps no organ in the body, which is more liable to the manifest varieties of inflammatory disease, as expressed by these two terms; and we shall therefore consider these varieties as distinct modifications of disease, manifesting considerable

difference in symptoms and requiring different treatment. We shall, then, first consider

ACUTE GASTRITIS.

This is seldom an entirely *independent* affection, though we meet with it so very frequently in the progress of other diseases, either growing out of them, or complicated with them, that it cannot be set down as an unfrequent disease. It is one of the most common complications of bilious fever, very few serious cases of which occur in the Western or Southern country, wherein this is not a prominent attendant. So also of many other forms of disease, and especially the exanthematous varieties. There is, for instance, no symptom more common during the progress of scarletina, than active inflammation or a high grade of irritation of the stomach. So also of small-pox, and in fact of almost every variety of disease of the skin, owing to that kind of continuous sympathy which has to be taken into account in the explanation of many phenomena connected with morbid actions. From the fact that the mucous surfaces and the common integument are a continuation of the same tissues more or less modified, it is not surprising that a strong sympathy should exist between the external and internal surfaces of the body, and consequently that the stomach, especially, should be affected by diseases pertaining to the skin. In addition to this, the great range of sympathy existing between the stomach and almost every other organ, must render it liable to be more or less affected by active disease, in whatever part of the body it may occur. Hence we find the stomach called into direct and active sympathy in diseases located very remotely from it. No matter where a disease exists, the intimate sympathy which the stomach holds with the most remote organs, renders it exceedingly obnoxious to the morbid influence. And this seems to be a very beneficent arrangement. The stomach, supplying the system, as it does, with all its materials for growth and reparation, if it were allowed to continue in a healthy condition, while disease was raging in the system, would be constantly adding fuel to the fire; but the sympathetic relation of which we have spoken, suspending the function of the stomach, prevents the process of nutrition from promoting the activity of disease.

The *symptoms* attendant upon acute inflammation of the stomach are very plain and easily recognized. Almost the first symptom of which the patient will complain is a burning sensation at the pit of the stomach, with nausea, and very generally, vomiting.

These are among the early symptoms that develop themselves in this form of disease, and they are essentially aggravated by pressure upon the epigastrium. The pain and soreness are also manifestly increased by vomiting, not unfrequently producing spasm of the muscular coat of the stomach, which constitutes a most distressing symptom.

The *contents* of the *stomach*, if ejected after a full meal, may be partially digested, presenting the appearance of chyme, mixed, generally, with more or less mucus, and, in some instances, streaked with blood, in the early stage.

Accompanying this irritated condition of the stomach will be frequent *spasms* of the *œsophagus*, causing difficulty in swallowing; and this is quite a prominent symptom. This organ may not be involved in the inflammation, but the spasmodic action is derived from nervous sympathy with the stomach. I have seen cases where it was almost impossible for the patient to swallow at all.

Intense *thirst* is another very prominent symptom and rarely absent. The patient will feel an incessant demand for cold drinks; and this thirst will be very difficult to relieve; a full draught of cold water scarcely remains long enough on the stomach to become warm, and there is an immediate demand for more. The only way in which the thirst can be satisfied, is by administering water in very small doses—a teaspoonful, at most, at a time—and this should be borne in mind. This symptom exists throughout the progress of the disease.

In addition to these *local* symptoms, we have many others of a more *general* character, but perhaps not less specific or peculiar. The *pulse* is very strikingly affected in gastritis, differing in many respects from its character in most other inflammatory diseases. While in other disorders of an inflammatory nature you generally have a full bounding pulse, in this it is small, hard and depressed. Accompanying this symptom, there is, generally, an intense heat of the skin on the body, while the extremities are

inclined to be cold, though in some stages the whole surface will be cool, but very dry and husky. In the early stage the skin is usually very dry and parched, and it is with great difficulty that any degree of relaxation is produced.

The *tongue* has a peculiar appearance, as you will readily suppose. In the early stage it is usually a little coated in the middle, while the edges are fiery red. That the coat is very thin is shown by the papillæ rising above it. But as the disease progresses this coat gradually disappears, and the whole surface of the tongue and lips presents a red, irritated appearance, such as we observe in protracted cases of disease of the lungs, and often in scarletina and other exanthematous disorders.

The *bowels*, as might be readily supposed, where inflammation does not extend to them, are exceedingly torpid; but where the inflammation extends to the bowels, which is apt to be the case in the later stages, if the disease be protracted, diarrhœa will be an attendant symptom. In this case the patient will lie upon his back with his feet drawn up, so as to relieve the tension of the abdomen.

Another prominent symptom is the peculiar *restlessness* of the patient, with the great depression of spirits which characterizes gastritis, showing most clearly the general sympathy between the stomach and every other organ in the system.

Respiration is materially affected in the progress of this disorder, being generally frequent, irregular and sighing. A troublesome hacking *cough* is a very common symptom. Whether this results from nausea and the constant tendency to vomit, or from direct sympathetic influence of the disease upon the lungs, is not clearly decided, yet you rarely ever find a case of acute inflammation of the stomach without this cough.

If there is a tendency to a *favorable* change, we will find a gradual amelioration of all these symptoms and a tendency of the stomach to return to its natural functions. If on the other hand the tendency is from *bad to worse*, we find a corresponding aggravation of all the symptoms attendant upon the case. The skin becomes cool, though exceedingly dry and hard, the urine becomes more scanty, if not suppressed; the pulse becomes more rapid and thread-like under the finger, the respiration more hurried

and irregular, the cough more troublesome, while the active vomiting and retching which accompany the early stage, give place to a kind of regurgitation, apparently without nausea, by which the contents of the stomach are thrown off without any apparent effort; this is a very alarming and formidable symptom. The matter ejected from the stomach is strikingly peculiar. Instead of the chyme and mucous ejections streaked with blood seen in the early stage, there is now thrown up a dark semi-bloody, grainy substance, very similar to the black vomit of yellow fever; being, undoubtedly, blood in a partially decomposed condition. Or if the ejections have not this character, they will consist of mucus containing dark flocculi, being, probably, portions of the mucous membrane, softened and detached. The countenance becomes sunken, haggard and deathlike, and presents every appearance of speedy dissolution.

When the stomach has been actually *disorganized* by the action of corrosive poisons, the countenance is pale and sunken from the beginning; those symptoms of reaction described in the first stages never occur, but the patient sinks at once into the condition marking the last stage of inflammation of the stomach, and often dies within from twelve to twenty-four hours, according to the amount of disorganization produced. When arsenic is taken there is a tendency to an immediate fatal termination. The disorganization in this case is not confined to the mucous coat, but extends to the cellular, muscular, and often to the serous tissues of the organ.

The duration of gastritis is quite variable, depending on the cause that produced it, and on the peculiarities of the constitution affected. It is however liable to be protracted, when not produced by local irritants or poisons. Coming on gradually, as it frequently does, it is very likely to be protracted and tedious. But where active inflammation, without disorganization, is produced by a local irritant; upon the removal of the cause, and under a mild soothing treatment, the patient soon recovers. Indeed, the rapidity with which recovery takes place, after the progress of morbid action has been arrested, is strikingly peculiar; and this will be observed, whether the inflammation is produced by direct local irritation, or arises in the progress of some other

disease. As soon as the active inflammation is subdued, the stomach begins to perform its natural functions of digestion, and the patient immediately recovers, notwithstanding there may have been great prostration of the vital powers.

You will not find every case presenting precisely the symptoms I have described. Of course, cases of a milder character would develop symptoms less formidable and severe, and it is unnecessary to dwell at length on the various modifications. I have given you merely the more prominent and diagnostic phenomena usually to be met in this disease, and upon which you may rely in forming an opinion. All we can do in describing diseases, is to pursue a kind of middle path as regards the symptoms, and leave the student to exercise his judgment in recognizing the modifications of these symptoms, which he must always expect to encounter in actual practice.

The *pathological* relations of this disease are of considerable importance, and I should be glad to dwell upon them more at length than present circumstances will permit. You will readily see the importance of a correct acquaintance with the anatomical characters of this affection, when you reflect that occasions may arise, when upon your decision as a medical man, may depend the liberty, perhaps, the lives of some of your fellow beings. I trust, therefore, that you will seek diligently to attain a thorough acquaintance with the pathological character of this disease, so important in toxicological investigations, and a knowledge of which will aid you much, also, in the application of a rational course of treatment.

Whatever the cause of the inflammation may be,—but more especially if produced in the ordinary way, as by fever, indigestible and irritating matters in the stomach, or intemperate drinking,—the stomach is usually very much contracted. And you will find this peculiarity important in discriminating between inflammation produced by an active poison, and that which is the result of protracted diseased action. In cases of the latter description the stomach is contracted, often almost to the size of the duodenum; while in the former it is but little changed in size.

The mucous membrane is red in places and exceedingly rough and corrugated, and the whole surface is usually covered with a

peculiar mucus-like substance of a friable and viscid nature, easily rubbed off with the handle of a scalpel; and upon removing this coat the true condition of the mucous membrane may be readily recognized. In health the surface is usually covered with mucus, but it has not this viscid, partially purulent appearance.

If the disease has not progressed to the extent of producing disorganization—as it will not in most cases, if the cause is promptly removed—the mucous membrane of the stomach has a reddened appearance, in some instances extending over the whole surface, but most generally in patches, exhibiting a radiated arrangement, like certain kinds of crystallization; which is owing to the great engorgement of some of the vessels while others are empty. This color will, however, vary exceedingly accordingly to the intensity of the inflammation. In some cases it is red, in others a dark purple. In a majority of cases post mortem examination will reveal more or less disorganization—in some cases actual ulceration in patches,—and the mucous coat so softened as to be easily picked to pieces with the fingers. The submucous cellular tissue is often in the same condition, and I have seen cases where the muscular coat could be picked to pieces like brown paper; but this is rare, unless produced by local poison.

It is important that you should be able to distinguish between the *redness* of mucous membranes caused by inflammation, and that pertaining to other conditions. It has been found, for instance, by ocular demonstration, in perhaps the only case of the kind that ever occurred, that during the process of digestion in health, the mucous coat presents a positively reddened appearance. The subject upon whom this, with various other observations was made, was a man by the name of St. Martin, who had a wound in his stomach through which the whole process of digestion could be seen. These observations were made by Dr. Beaumont, during a series of months, and under a great variety of circumstances. It was found that during the process of digestion the mucous coat of the stomach presented a rose colored appearance, but more especially when stimulating drinks were taken with the food. It should also be borne in mind that the stomachs of children in health always have this rose colored flush.

These facts should be retained in the memory, as they are

important in *legal investigations* in reference to the cause of death. Mere redness is not a sufficient ground for the opinion that inflammation has certainly existed in the case. In forming an opinion, under such circumstances, you should take into consideration the history of the case; the mode of death, whether sudden, or otherwise; the character of the individual; the contents of the stomach and bowels as indicating the state of the digestive functions, &c. Without this care and precaution, you might be led to express an opinion entirely erroneous and upon which serious consequences to others might depend; and I need hardly add that such a mistake, afterwards discovered, would be a source of severe and lasting uneasiness, to say the least, in the mind of the conscientious and sensitive physician.

The *causes* of inflammation of the stomach you have probably already anticipated. I will however say, that irritating substances taken into the stomach are by far the most frequent causes of gastritis, where it occurs as an independent affection. Highly seasoned and stimulating food is frequently the cause of inflammation of the stomach, where there is a predisposition to the disease; and although the more corrosive and irritating the substance swallowed, the more certain is it to light up inflammatory action; yet apparently trifling causes sometimes appear to produce it under certain circumstances. A very important fact in this connection, and one which should not be lost sight of in practice, is that there exists in many families an evident hereditary predisposition to this form of disease. Where you find the father and mother exceedingly obnoxious to disorder of this organ, you will generally find the same tendency in the children. I have in my mind now, quite a number of families of this description. If you are called upon to practice in such families, your success will in a great measure depend on your acquaintance with their diatheses and idiosyncrasies. While in some families you may safely administer active purgatives in the treatment of various forms of disease, you could not employ them in families having a strong predisposition to irritation of the stomach, except at the risk of producing inflammation of that organ.

Inflammation of the stomach has been produced by an over

draught of cold water, taken when the system was highly excited by exercise, or heated by exposure to the direct rays of the sun.

It is also sometimes produced by the translation of other disease, as rheumatism, gout, and cutaneous eruptions. We often see children that have been thrown into spasms by the sudden retrocession of eruptions on the skin, associated with irritation involving the mucous surface of the stomach. Facts of this kind are too important to be overlooked in treatment.

In the *treatment* of gastritis, as in all other diseases, the paramount consideration is the cause; for upon this your course of measures will greatly depend. If, then, you have a case of inflammation of the stomach caused by an acrid poison taken into it, your first effort should be to evacuate the stomach and wash it out. Of course, then, the first remedy to be given is an emetic, and the choice of an agent for this purpose is of great importance. It should be one that will operate quickly, and thoroughly; completely evacuating the stomach, and producing as little irritation as possible. To fulfill this indication with efficiency I know of no article in the whole range of remedies of this class, preferable to the infusion of lobelia and eupatorium, or the tincture of lobelia in an infusion of the boneset. In nineteen cases out of twenty the first dose will not lie on the stomach five minutes. The dose should be large, so as to secure a quick and complete evacuation. The first dose should be administered with but little fluid. But after evacuating the stomach of its contents, I wish you to bear it in mind, gentlemen, you must proceed further, and by the use of fluids wash out all the remaining poison, which may have become involved in the villous surface of the stomach and thus retained. Therefore, after having secured a full and free emesis by your first prescription, fill the stomach with a warm fluid, for which purpose the boneset infusion is well adapted, as it possesses emetic properties itself in large doses, and essentially aids the action of the lobelia, while it answers the purpose of a wash as well as any thing else. In the absence of lobelia an infusion of ipecacuanha may be employed.

This indication being fulfilled, you have a simple case of gastritis to treat, and if the action of the poison has not produced positive disorganization, the symptoms will usually subside in a

short time. On the other hand, if disorganization has taken place, you have a more aggravated case, which must be managed by prompt but mild measures. The bowels should be evacuated by enemata, as cathartics by way of the stomach are inadmissible, first because they would aggravate the inflammation, and secondly because they would not be retained. I am accustomed, in such cases, to administer by injection a decoction of our antibilious physic, or castor oil, molasses and warm water, advising the patient to retain it as long as practicable. If this does not operate in two hours, I give a second portion and allow it to come away immediately. The clyster should be thrown well up into the colon; hence, a pump is better than a syringe, if convenient. This will usually produce free evacuation of the bowels. Conjointly with the measures I have recommended, counter-irritation should be employed over the stomach; even cupping might be of service, though I have found less benefit resulting from the use of cups over the stomach, than on any other part of the body. The imperfect supply, both of the capillary vessels and nervous sensibility, to the surface in the epigastrium, renders it difficult to produce much effect, especially with ordinary cupping glasses, and if this measure is employed, a large tumbler should be used for the purpose. I have sometimes produced very marked results by the use of a glass large enough to cover a considerable portion of the epigastric region. Extreme irritability of the stomach may be relieved by very small portions of morphine; just enough to act as a mild local sedative. The doses may be from one twentieth to one sixteenth of a grain, and given every two hours until the desired effect is produced. Very small quantities of any kind of fluids should be allowed. In giving the patient drink, only a teaspoonfull should be given at a time, and then you should wait for that to be absorbed before any more is given, for a larger quantity will most certainly be rejected by the stomach, and the act of vomiting will aggravate the irritation and consequently increase the thirst. But by administering water in very small quantities, a much larger amount can be introduced into the system within a given time, than could possibly be done in large portions.

If you learn from the history of the case that it has resulted

from taking cold water, while the system was over-heated, you will rely much upon counter-irritation over the stomach. If you should give an emetic in this case, as was directed in the one last mentioned, you would most certainly and seriously aggravate the inflammation. Sinapisms or cups should be applied to the epigastric region, and followed by hot fomentations, or what, in my experience often answers a most admirable purpose, the application of a towel wet in cold water, to the same part. Cool and soothing drink should be given. A cold infusion of the *althæa officinalis* (or marsh mallows,) slippery elm, or flax seed, is suitable for this purpose, while the use of stimulating injections will serve to keep up a due activity of the bowels, and act in some measure revulsively on the inflamed stomach. In this case, too, if there is much irritability, small doses of morphine will be advantageous in soothing the stomach and arresting the vomiting.

If the disease has been produced by the excessive use of alcoholic stimulants, as you will often find to be the case in the early stage of *delirium tremens*, all that can be done is to withhold those stimulants, apply moderate counter-irritation, and secure rest to the patient by very small doses of morphine, or better, dilute prussic acid.

If the disease result from rheumatism, in addition to the soothing internal treatment already recommended, extensive counter-irritation to the spine, and such other local measures as will be hereafter directed for the cure of rheumatic disorders, will be required.

LECTURE XXIV.

CHRONIC GASTRITIS—CHRONIC INFLAMMATION OF THE STOMACH.

Preliminary Remarks—Distinguished from Dyspepsia—Symptoms—Duration—Causes—Treatment—If caused by Over-eating, &c.—If caused by Spirituous Liquors—Active Purgatives to be Avoided. DYSPEPSIA OR INDIGESTION—Digestive Function considered—Effects of Fluids—Symptoms of Hepatic Disorder—Influence of Irregular Habits—Want of Exercise, &c.

This is a disease of very frequent occurrence. I do not think, however, that the phenomena which characterize what is usually called chronic inflammation of the stomach, denote a condition which can, strictly speaking, be called inflammation; though the appearances on post mortem examination do indicate the results of morbid action, justifying, perhaps, the use of this term. I prefer however to call it irritation; and think this word more truly expressive of the real nature of the difficulty. It is a condition of the mucous surface holding a position midway between active inflammation and a state of health. I think the circumstances attendant upon it, and the symptoms that it develops, clearly justify this conclusion; but you will find it treated of in the authorities as chronic inflammation, and for convenience sake I retain the term, using it however in this relation as synonymous with irritation.

This affection is manifested by a number of very prominent symptoms, and is attended by a form of indigestion which is frequently called dyspepsia, and may in fact be considered a variety of dyspepsia, though it does not present a condition of the

stomach usually embraced under that term. I shall speak of indigestion proper, hereafter, during this lecture, and will now consider that form of disease which is dependent on irritation. This form of indigestion is a very common condition, and one for which you will frequently be called to prescribe under the *name* of indigestion or dyspepsia. And if you do not recognize the real condition of the stomach you will be liable to be misled in your treatment. If you rely upon the name merely, as is too often the case, and undertake to administer tonics and stimulants, as in ordinary forms of dyspepsia, you will be almost certain to aggravate every symptom, and do the patient serious injury.

We have then this morning to consider the *phenomena* of indigestion connected with irritation, or, what is commonly called chronic inflammation of the stomach. It will be distinctly manifested by some three or four peculiar symptoms which are clearly diagnostic. The appearance of the tongue is an almost certain guide. It is nearly always tipped on the edges with a deep red color; in other cases the whole surface will show a very peculiar appearance—in most instances, high colored, smooth and glossy; though sometimes but little changed in color, and rarely ever coated. But the red appearance does not always imply irritation of the stomach, unless there are other symptoms present. When you observe this condition of the tongue with a small and somewhat excited pulse,—though not so rapid as in the acute inflammation, yet, upon careful investigation, evidently somewhat excited, ranging perhaps from 80 to 100 per minute—with a small wiry feel; and when, in addition to these two symptoms, you find the local evidence of gastric irritation, such as constant uneasiness and tenderness upon pressure in the epigastrium, you have the essential characteristics of this disease. When these symptoms are clearly developed you need scarcely look farther. This uneasiness of the stomach will be essentially aggravated after eating—especially after a full meal. Unlike any other form of dyspepsia, eating does not give temporary relief. The pain may be confined to the stomach, or shoot from one side to the other, ascending into the lungs and sometimes to the œsophagus, and producing a spasmodic and choking sensation.

The bowels, if the inflammation is confined to the stomach, are

usually costive ; but in a large majority of cases the irritation, if serious and protracted, is extended to the mucous surface of the bowels and diarrhoea is the consequence. The skin, though not hot, has a peculiar rough, dry, and husky character. I have seen it exhibiting a kind of scaly and parched appearance. The urine is exceedingly variable in quantity, being sometimes scanty and at others quite free and copious, is usually high-colored, and upon standing will deposit a sediment. You will not find this to be the case in any active inflammatory disease. It is a peculiar symptom of active inflammation, that during its progress the urine never deposits a sediment, though such deposit is almost always an attendant upon its decline. The appetite and thirst in chronic gastritis are exceedingly variable. In a majority of cases there is great demand for drink ; and the appetite is sometimes voracious, while in other cases it is entirely absent. The patient will sit down to a meal with an apparent demand for food, but on eating a mouthful or two it becomes offensive and produces nausea. Headache will usually follow a meal, especially a full one, and this is almost invariably accompanied with an increase of tenderness in the epigastrium.

A sensation is frequently experienced which is mistaken for hunger, and the patient will partake, to his great inconvenience, of a considerable quantity of food out of his regular hours for eating. This should be carefully avoided. In some cases there is an entire loss of appetite with a disagreeable taste in the mouth, especially in the morning. In others, there will be excessive accumulations of gas in the stomach, from the partial fermentation or decomposition of the food. This gas varies greatly in its character, in some instances being not unusually offensive, but in others exceedingly so. In other cases nausea immediately follows eating, and the patient leaves the table to throw up what he has taken.

These are the general leading symptoms of chronic inflammation of the stomach, or what I consider merely a form of indigestion dependent on irritation. It is exceedingly variable in its *duration*. It often supervenes on attacks of fever, especially of typhoid, where the individual upon getting up eats too much, and his already debilitated stomach becomes the seat of irritation. It

sometimes lasts for years and not unfrequently lays the foundation for more formidable diseases. I have seen many cases of phthisis pulmonalis resulting from this disease. Hence the great importance of being careful, after the occurrence of fevers and other forms of disease developing or associated with this condition of the stomach, not to indulge too much in eating or other irregularities. There is no doubt that this form of inflammation frequently terminates in ulceration; in fact many cases of this kind have occurred. It may also result in softening and gangrene.

There is but one form of disease with which it is liable to be confounded, but if you are careful in observing the particular symptoms you will not be misled. It may be confounded with gastralgia. But in this disease there is no tenderness of the epigastrium, no unusual appearance of the tongue, nor excitement of the pulse. The anatomical developments of this form of disease are not very materially different from those of acute gastritis, except that the redness is of a much lighter color and the other evidences of disease are not generally so striking nor extensive as in the acute form.

In regard to the *causes*, you have perhaps already anticipated me. It most commonly results from particular cases of fever badly treated; or from constitutional predisposition and indiscretion in eating and drinking. It is a very common attendant upon habits of intemperance.

Another very common cause is the long continued use of active drastic purgatives. And this is an important idea that should not be lost sight of in the treatment. It is often an attendant upon the last stage of consumption, frequently in fact a symptom throughout the whole progress of that disease, and not unfrequently the essential cause in the production of pulmonary disease. In some instances I have known it to follow scarlet fever, and sometimes small pox. This arises from imprudence, and with proper care may be avoided in these diseases, and also in typhoid and congestive fever.

There is another circumstance that should not be overlooked in the investigation of these cases. I refer to the peculiar predisposition in individuals and families. Where this is found to be the case, more strict care in diet and habits is necessary.

With a view to the correct *treatment* of chronic inflammation, the cause should first be ascertained. If it has been the result of indiscretion in eating and drinking, the regulation of these habits, if it does not effect the cure of itself, will essentially hasten the progress of recovery. And without this you may as well expect to extinguish fire by adding fuel. Attention to diet is of paramount consideration. The food should be of the mildest and most unirritating kind, while you should carefully avoid all active medication. Slight counter-irritation of the stomach and the simplest kind of tonics may be resorted to. I have been in the habit of giving, under such circumstances, a decoction or infusion of the staphylea, which may be relied on as a tonic—that will not aggravate the symptoms. These means, with as much *exercise* as is compatible with the circumstances of the case, will usually be sufficient. If the bowels are costive, and the proper regimen fails to bring about a healthy action, gentle lavements should be resorted to. Regularity in this respect should by all means be secured; and if it cannot be done otherwise, the enemata should be given at certain hours; and in this manner regularity will be induced. There is perhaps no other disease in which regularity and order are more important than in diseases of the stomach, owing to the intimate sympathy existing between the stomach and every other organ of the body.

I might perhaps particularize with advantage, the kinds of *food* most suitable under these circumstances. Rice, cream toast, made of stale bread, with little if any butter, and weak tea, are allowable, but until the irritation has in a good measure receded, no kind of animal food should be allowed, and spirits of every description, even ale and the weak wines, should be strictly forbidden. But when the more urgent symptoms of the irritation have subsided, you may gradually introduce more substantial and stimulating diet. Extreme circumspection is necessary in diet, for the least change would be sensibly felt by the stomach. When it is thought advisable to allow meat, attention should be paid to the kind used. Rarely cooked beef is perhaps the most easy of digestion. I have learned from long experience that over cooked meats of any kind are less easy of digestion than if rarely done. Beef is perhaps the most digestible meat, but venison and birds are

nearly equally so. Pork, and fat greasy food of every description, should be proscribed. Veal is not so easy of digestion as beef. A small amount of mutton may be used when the patient is fond of it. I have found another article of animal diet very easily digested; I mean codfish. After the irritation of the stomach is subdued, this article, eaten with a roasted, mealy potato, will be very acceptable to the stomach. I have often seen patients bear this before they could eat any other kind of animal food, and it is very nutritious.

In those cases brought about by the long continued use of *spirituous liquors* you will not find precisely the same course applicable. You will find it necessary in this case to resort to mild stimulants. Complete abstinence from their use after employing them for a long time, would produce unpleasant results. Instead of the more stimulating liquors you should recommend ale, and perhaps some of the weaker wines, two or three times a day. With these, use counter-irritation and mild tonics. I do not desire to be understood, however, as recommending the prescription of alcoholic drinks for persons of intemperate habits, and who are making an effort to reform. Such persons should be prevented if possible from tasting spirits, even at the risk of incurring an attack of mania *â potu*. Should symptoms of this affection ensue, such treatment should be employed as will be directed under that head.

You will find some persons very fond of milk. And though this is an article which will not ordinarily be borne in these cases, there are certain constitutions with which it will agree, even in this disease; and these peculiarities should always be taken into consideration.

But above all, abstain from *active purgatives* of every description, and if the bowels cannot be moved by proper regimen and injections, then the simplest aperients should alone be resorted to; bearing in mind that you have an extremely irritated surface with which your medicine must come in contact, and that purgatives tend to aggravate this irritation, and should only be administered where the disturbance of the system would be greater without them,—which is very rare. But you may rely upon it, as long as you administer active purges and stimulants your

patients will not recover; although they may be temporarily relieved, the disease will be more firmly fixed, and is sure to be more protracted. If, from the evacuations and symptoms present, you discover that there is an increase in the irritation of the stomach, during the application of more corroborative measures, a slight change of treatment will be necessary.

Under such circumstances tea of *hydrastis canadensis* and a return to the more simple and mild articles of diet will be necessary. I have seen patients recover under this course that had lingered for a long time under other treatment. Another very useful remedy in some cases is small portions of the nitrate of silver, administered with great caution, and not repeated often. It may be given in doses of from one-twentieth to the sixteenth of a grain, and repeated once in eight hours for a day or two, when it should be suspended. The crystalized nitrate of silver may be surrounded with gum opium, when the disease is associated with a mucous diarrhoea, or when the opium is objectionable or unnecessary it may be made into a pill with gum arabic. In this manner it will excite healthy action in the ulcerated and abraded mucous tissues, and often be followed by healthy bilious evacuations. Where it is connected with irritation of the bowels and diarrhoea, but not of a mucous character, with less of general irritation, our compound neutralizing physic* is the most reliable remedy, and one less likely to disappoint your expectations than any prescription I have ever used. This may be given, not as a purgative, but with a view to correct the acidity of the alimentary canal, gradually restrain the too frequent discharges, and give tone to the relaxed mucous membrane.

DYSPEPSIA OR INDIGESTION.

We come now to speak of *indigestion proper*. This form of indigestion is entirely different from that which I have just considered. It may be dependent upon mere torpor of the stomach,

* R Rhubarb pulv. (Turk.) }
 Bi-Carb. potass. } *āā* 3ss
 Fol. Mentha pip. }
 Cassia Cinnam. pulv. }
 Water, boiling, Oij
 Infuse, strain, and add sugar q. s.

either of the muscular coat, mucous membrane, or gastric follicles. When the mucous coat is torpid it may fail to secrete the proper amount of gastric fluid, so essential to digestion, and slow or imperfect digestion will be the result. This constitutes one form of indigestion; so when there is positive debility of the muscular coat, that contraction of the stomach so important in every stage of digestion is wanting, and *dyspepsia* or *indigestion* is the inevitable consequence.

For the purpose of better appreciating the phenomena of indigestion, it will be profitable for us to inquire into, or understand in what the process of digestion consists, and what are the well defined attendant phenomena that follow after mastication, and after the food is taken into the stomach. If liquids are taken with the food, it will remain unchanged until the fluid portion is absorbed. We find a peculiar set of vessels in the stomach, which are found in the system nowhere else, consisting of open mouthed veins, which, by a kind of suction, or to speak more scientifically, by absorption, take up the fluid. When the fluid is all absorbed by these vessels, the muscular coat of the stomach contracts upon its solid contents, and digestion may then be said to be properly commenced. I do not use the word *solid* in its usual signification, that is, I do not mean that the food becomes as solid as a piece of marble, but that it acquires a considerable degree of consistency before the muscular action of the stomach is exerted upon it. After the muscular coat contracts, and the mucous and villous coat touches the mass of food and presses upon it at every point, the gastric juice is given out, and then the process of digestion is fully under way. The gastric juice spreads over the solid contents of the stomach and softens the surface of the whole mass. The surface is then rubbed off by attrition of the villi of the mucous membrane, produced by the constantly recurring contraction of the variously arranged fibres of the muscular coat of the stomach, and when thus rubbed off is passed onward to the pylorus. From thence it is taken into the duodenum and mixed with the secretion from the liver.

Another portion of gastric juice is then secreted and performs its work of softening as before, and another portion of the food is

rubbed off by the villous surface and passes into the duodenum ; and thus the process goes on until the contents are *digested*.

Fluids, taken into the stomach, during the process of digestion, suspend this process, until the fluid is absorbed. This should be borne in mind in the treatment of dyspeptics. They should have their regular drinks as well as regular meals, and take neither out of the proper time. You can readily see how debility of any of the coats of the stomach may be connected with indigestion, and you can also appreciate the modifying influence of both the quantity and the quality of food.

It follows conclusively from these considerations that the suspension of action either in the muscular coat, or the mucous membrane and gastric follicles, must of necessity interrupt more or less the process of digestion, and should be avoided.

Indigestion may also be dependent upon torpor of the liver or excessive action of that organ. In that case the stomach is not usually or necessarily involved to any great extent. Where it depends on the *liver* the character of the evacuations will be the main circumstance that will enable you to recognize it. The liver may however perform its functions naturally and properly, while indigestion may exist, dependent on mere atony of the organs concerned in the first process of digestion. This condition of the stomach will be accompanied by some symptoms of a peculiar character. I may remark here, however, that the absence of those symptoms common to inflammation of the stomach will be your main guide in determining the proposition. In other words, if you find a patient laboring under indigestion, whose food produces distress a few hours after it has been taken, who regurgitates his food with or without nausea—whether he had an appetite before eating or not—whose food passes off undigested, and who does not exhibit those symptoms of excitement described as characterizing chronic inflammation, you may look upon it as a case of dyspepsia depending on debility of the stomach and not on irritation. Persons with this form of indigestion are apt to have restless nights and unpleasant dreams. Another peculiar symptom in this form of indigestion will be the entire relief from all uneasiness immediately after eating. Eating seems to satisfy the demand for food, and is not immediately followed by those distressing symp-

toms which invariably accompany the early stage of the digestive process, when there is an irritable condition of the stomach. This fact is peculiarly diagnostic. A great variety of sympathetic symptoms will be found to accompany this form of disease, upon which it is unnecessary to dwell at length. Palpitation of the heart is often an attendant symptom, and subsides when the tone of the digestive organs is restored. The tongue in most cases is furred, especially in the morning, and the coat will sometimes pass off toward evening, and leave the tongue clean and without any unusual redness. More or less debility too is a general attendant upon indigestion. The capillary circulation is generally imperfect, and the extremities usually cold upon the least exposure. In some cases the individual seems to retain his ordinary amount of flesh, but in most cases the disease is attended by emaciation.

The most common cause of this form of indigestion is *irregularity of habits* associated with want of exercise. Individuals of sedentary habits are most liable to it. The stomach seems to regulate its action by the activity of the other organs of the body. When the individual is confined and takes little exercise, the muscles being but slightly employed, nutrition is imperfectly accomplished, and the stomach will also assume an inactive character. Exercise is almost as necessary to good health as the food we take, and it is the only method in fact by which the old, effete matter can be eliminated from the system, and new materials taken in its place. As a general rule the muscular vigor and power will be in proportion to the exercise taken. This is true of the muscular system in general and of each individual muscle separately.

No muscle can continue habitually inactive without becoming more or less debilitated, and without in a degree impairing the tone of the stomach. In other words, the full energy of the digestive functions cannot be sustained without such exercise as shall require moderate action in all the muscles of the body. Hence, the muscular coat of the stomach is usually, in persons of sedentary habits, debilitated. This fact should by all means be taken into account, in regulating the dietetic habits of individuals. There should in all cases be observed a proportion between the receipts

and expenditures of the system. Persons with but little exercise should take but little food, while the active out-door laborer requires an abundance of stimulating and nutritious aliment. Excessive mental labor also diverts from the stomach those nervous energies so essential to digestion; hence you will find that among the literary portion of community this is a very common disease. Another very prolific cause of this form of indigestion in this country, may be found in the practice of eating too fast, so very common among a large portion of our population in this land of hurry, and bustle, and free institutions, where every man is dependent upon the energy and rapidity of his movements for his advancement or success in any department of business. Hence we find among the boarders of our large hotels, who always eat in a hurry, a great amount of indigestion. This is brought about in two ways; first, an individual who eats very fast is sure to swallow a much larger amount of food than his system demands. The rapidity with which it is forced into the stomach prevents that organ from recognizing and indicating when the requisite quantity has been received. Hence the rapid feeder always eats too much. Not only so, but this habit involves, necessarily, less perfect mastication than where sufficient time is spent in eating. In this condition the gastric juice acts less readily upon the food, and the mucous surface is less efficient in reducing it to the consistency of chyme. In this way the stomach is overburdened and oppressed, and this form of indigestion is rapidly produced. It is also a frequent attendant of chronic disease of the liver, in which case the stomach is very liable to become sympathetically affected. But even before this is the case, the usual general symptoms of dyspepsia may occur. The process of chymification may be properly accomplished in the stomach, but owing to a *deficiency* of healthy bile the further progress of digestion may be very imperfectly performed. This form of indigestion, in addition to the debility, emaciation and other symptoms of dyspepsia, is attended with alternations of costiveness and diarrhoea and clay-colored evacuations, and very generally a jaundice-like hue of the eyes and skin. You will find it to be a common practice among nurses where infants have to be fed, to dilute their milk. This is a great error, and scarcely ever fails to produce its bad effects. The functions

of digestion need only be understood to satisfy any man of this matter. The milk when taken into the stomach must become curdled and the water absorbed before it will digest ; and when digestion is delayed beyond a certain length of time, the substance in the stomach has a strong tendency to ferment, and this is a very common cause of indigestion. Almost every article is more or less liable to fermentation, especially vegetables. The symptom of fermentation is eructation of wind from the stomach, and when this is the case it will be well for the patient to change his diet and use a small quantity.

LECTURE XXV.

INDIGESTION — CONTINUED.

Treatment. HYGIENIC TREATMENT. *Food, proper and improper—
Fluids not advisable—Exercise—Summary—*MEDICINAL TREATMENT
—Neuralgic cases—Spasm of Stomach.

In the *Treatment of Indigestion*, paramount, in importance, to every other consideration, is attention to diet and exercise. Without reference to these two important matters, you need not expect to meet with success, from any course of medication that you may adopt; but by properly regulating the habits of your patient in these respects you may often be entirely successful in relieving him, without administering a portion of medicine of any kind; though generally the symptoms can be favorably modified and the cure hastened by judicious medical treatment.

Although there are certain general principles by which we should be governed in the main, both in regulating the diet and exercise of the patient, and in prescribing remedial agents, yet each and every case must, to a certain extent, be managed according to its own peculiarities, and the idiosyncrasies of the patient. Hence, notwithstanding my directions as to regimen and medicine, as well as the treatment recommended in the books, must necessarily be of a general character, it will be requisite for you to exercise a judicious discretion in each individual case. I shall speak for instance of those articles of diet which are generally admissible in cases of this kind, and of such as are objectionable; but from the experience of the patient, and your observation of his symptoms, you will determine what quantity and quality of food are adapted to his case; and so also in regard to exercise and medicine.

Hygienic Treatment. It will be borne in mind that we have now under consideration a case of indigestion depending upon debility of the digestive apparatus, and almost always connected with general debility. The *food* allowed the patient should, therefore, be easily digested, so that it may not oppress and overpower the stomach; and it should be at the same time nutritious, and adapted to sustain and invigorate the general system. Hence, all fat and greasy food of every description should be avoided. Salt meats too are generably objectionable, mainly because they are more difficult of digestion than those that are fresh. Pork of every kind, and however prepared, should be proscribed, unless under some peculiarities of constitution which rarely occur. Occasional instances may be found where pork appears to agree with the stomach better than any other kind of animal food, and where such is clearly the case it should be allowed once a day. Veal also is an article that should be generally forbidden. It is a fact, which would probably be strongly doubted, had not experience established it beyond question, that young animal flesh is generally harder of digestion than that of older animals, though extremes either way are objectionable—both old beef and young veal are digested with difficulty, and so of other animals. The flesh of some kinds of fowls, too, is hard to digest, owing chiefly perhaps to the oil usually contained in it. Geese and ducks, however young and tender, will generally be found inadmissible in cases of dyspepsia. The same may be said of most kinds of fish, whether fresh or salted; yet there is one kind of fish, which I have found by experience to be not only easy of digestion, but very acceptable to many debilitated stomachs, and it is highly nutritious; I refer to codfish. This is one of my favorite articles of diet in dyspepsia where the patient has been accustomed to its use, or is fond of it. Almost every variety of green vegetables is objectionable, not only because they are indigestible, but also from their tendency to fermentation and decomposition. Cabbage, lettuce, radishes, onions, and the like, should in all cases of indigestion be strictly avoided; while ripe vegetables, such as mealy potatoes, ripe peaches, ripe apples—cooked, &c., being articles of rather easy digestion, may be allowed, where there is no constitutional peculiarity barring their use. Pastries of every descrip-

tion are so imperfectly acted upon by the gastric fluid, and so tardy of digestion, as to exhaust the powers of the stomach and produce debility of the organ, where freely used, even in health, and they are of course highly improper in the condition now under consideration. Hot bread and hot biscuit, are liable to the same objection, as they form a pastelike mass in the stomach, almost impervious to the gastric fluid and consequently digested with much greater difficulty than cold bread, which is dissolved with facility; hence, according both to experience and sound philosophy, hot bread is incompatible with the state of the stomach of which I am now speaking, if indeed it should be tolerated under any circumstances. Highly seasoned dishes, containing condiments of an irritating or stimulating quality, that tend to retard digestion by interfering with the proper secretion of the gastric fluid, and by their debilitating influence on the muscular coat of the stomach, are very improper articles of food. Puddings of almost every description, combining the qualities of pastries, hot bread, high seasoned food, and frequently abundance of saccharine matter, are not only difficult of digestion, but they are apt to produce acidity and fermentation, and are in all respects inadmissible in this disease. Hard boiled eggs should not be allowed, and in fact I have some doubts whether eggs in any form are suitable as food for dyspeptic persons; at least I should not recommend them. Soups of every kind are objectionable, not because the articles of which they are composed are necessarily indigestible, but because of the large proportion of fluid they contain, which must be absorbed previous to the commencement of digestion; and before this is effected, fermentation is apt to commence and thus prevent the process of chymification from being accomplished. Instances may occasionally be found where this form of food will seem to be suited to the peculiar character of the case, but generally, soups and indeed all liquid forms of food are unfavorable. Sugar and articles containing it are hard to digest, and tend to promote fermentation and the formation of acid. So also of butter, which, strange as it may appear, is demonstrated by Liebig's analysis to have the same chemical composition as sugar, and consequently the same combining affinities; the only difference being, as is supposed, in the different physical

arrangement of their elementary constituents. They both consist principally of carbon, which is also the principal constituent of the adipose matter accumulated in the systems of corpulent persons. This accumulation results from an excess of carbonaceous materials, which, as they are not largely employed in the organic structures of the body, are deposited as a reserve store, to be consumed, if need be, in the combustion of respiration and calorification, but contribute very little to the nutritive process. It is true, you will find in the older physiological works, that butter and sugar are set down as highly nutritious. The fact that the negroes generally grow fat, during the sugar making season in the South, has been adduced as evidence of the nutritious character of the saccharine substance. I do not deny that butter and sugar will produce fat; but this is far from being muscle, or tendon, or ligament, or any structure essential to vigor, strength, and energy.

Perhaps you are now ready to inquire, since so many articles are proscribed, "where shall we find diet suitable for the dyspeptic patient?" I answer, it is abundant. Bread at least a day old;—not short biscuit but light yeast bread;—and ripe, mealy potatoes,—roasted, baked or boiled,—are two articles, that furnish a large amount of nutriment, and are easily digested; and which, fortunately, are very generally acceptable to the stomach, where food can be tolerated at all. Unripe potatoes are hard to digest and should not be allowed, but ripe ones, well cooked, can generally be digested with facility if taken in moderate quantities. I have already said that ripe peaches, cooked or raw, and ripe apples, stewed, are generally acceptable even to debilitated stomachs; and they serve to give a zest to the plain, simple food to which the patient is necessarily restricted. Milk is in some cases acceptable, and easily digested, and where this is found to be the case it is an excellent article of diet, but there are cases in which it will not be borne at all. I will here remark, also, that I have found cream more generally acceptable, and more easy of digestion than milk, and have often met with cases where small quantities of it, taken with other light food, were appropriated with facility to the nutrition of the system. Ice cream has often been prescribed in this affection, but according to my own personal

experience, and my observation of its use by others, I regard it as of doubtful propriety, to say the least. If used at all, it should be in small quantities, and not too rapidly taken. Cheese is too hard to digest, to be admissible generally in this disease. In my remarks concerning butter, a few minutes ago, I did not intend to be understood as proscribing the article entirely. On the contrary, I generally allow a small quantity of fresh, sweet butter to be taken with the bread or potatoes. I do not deem it necessary to confine the patient to an offensive or unpalatable diet, but, while I would insist on its being light and simple, I would willingly render it as pleasant to the palate as practicable under the circumstances. Hence I should not forbid the prudent use of good butter; but the rancid article, too frequently met with, should not be allowed at all. I have been in the habit of allowing certain kinds of fresh meat also, and experience seems to justify the course. Tender beef, rarely cooked, being easily digested and with facility assimilated to the tissues of the system, may be used in such moderate quantity as not to oppress or overstimulate the organs of digestion. The same may be said of mutton, well cooked, but not crisped, of venison fresh or dried, of the white flesh of chickens and turkeys, of birds, such as quails, partridges, &c., all of which being principally devoid of oil or fat may be safely allowed in reasonable quantities. Oysters, either cooked or raw, as the patient may prefer, are tolerably easy of digestion, and may be occasionally allowed; but they should not be cooked with milk and condiments, as you sometimes find them in the restaurant, as such cookery renders them difficult of digestion and totally inadmissible in this condition of the stomach.

As regards the use of fluids I have perhaps already said enough to enable you to anticipate my views. But little liquids of any kind should be taken either during meals, or during the process of digestion, for the reasons which have been already stated. If taken with the food, the liquid must be absorbed before digestion can commence, and if swallowed during its progress, the process is arrested until absorption shall have removed the fluid taken; and in either case it tends to encourage fermentation, or at least afford time for that process, by delaying the digestive function. But between the periods of digestion, innocent drinks are not

objectionable. Coffee, however, should not be used at any time, by the dyspeptic, for it seems to produce debility of the stomach, probably by its primary stimulating effect, followed by a local narcotic or sedative influence on the gastric nerves; and its use is probably a prolific source of dyspepsia. Black tea or cold water is the best drink in such cases, either between meals, or where the patient must use a liquid while eating.

While speaking of bread, I omitted to mention an article of this kind which is often employed with advantage in this affection. I refer to brown bread or bread made of unbolted flour. This, while it is sufficiently nutritious, and as acceptable to the stomach and as easily digested as common white bread, has an aperient effect upon the bowels, and tends to keep them in a soluble condition. As it is not convenient to procure it from the bakery in many places, it may be well to state here, that it should be made of the flour of common wheat without bolting. The flour should, however, be passed through a sieve, to remove any extraneous substances, and the coarsest of the bran. The bread is raised with yeast as other bread, but should be baked without being kneaded a second time.

I will now close my remarks on diet by adding, that patients in this disease should not partake of many varieties of even admissible articles at the same meal, as the practice generally leads to over-eating; and mixing several kinds of food together both favors fermentation, and increases the difficulty of digestion.

We come now to another important item in the treatment of dyspepsia; I mean exercise. As a means of restoring healthy action in the digestive apparatus, exercise judiciously taken is of scarcely less importance than the regulation of the diet. Perhaps the want of proper and regular exercise may have been the principal cause of gastric debility in a case for which you are called to prescribe; and, if so, attention to this matter will of course be indispensable. In fact there is no condition in which persons can be placed in life, where daily and regular exercise may be safely neglected. Where physical effort is not necessary for obtaining the means of sustenance, it should be performed as requisite to health and vigor. The extent of the physiological influence of bodily exercise is not, I believe, half appreciated by

the medical profession, much less by mankind at large. I have heretofore dwelt at some length on the effects of exercise in changing the habit of the human system ; and the influence of muscular inactivity in producing atony of the digestive organs, so that it is perhaps unnecessary to detain you with remarks on this subject at this time ; I will, however, merely repeat in another form, one or two ideas heretofore presented. Without proper exercise neither the function of absorption, nor that of nutrition, can be efficiently performed, so that an inactive, sedentary life tends to deteriorate the animal tissues, by leaving the old, stale or effete materials uneliminated, long after they should be removed from the system, and their place supplied by new and healthy products of nutrition ; whereas regular and judicious muscular activity has a constant rejuvenating influence, making us healthy, vigorous and fresh as the plant in spring. Even young persons, and more especially those who are old, experience the vitiating influence of inactivity, and the habitual neglect of proper exercise does much, not only to promote disease, but to bring on premature decline. In the absence of exercise the stomach is not called into action, there is no relish for food, stimulants are employed to promote appetite and force digestion, where there is no natural demand for aliment, and in this way the nervous sensibility of the stomach is impaired, its muscular energy weakened, and its secretions are vitiated and all the horrors of indigestion are experienced. No wonder this has been called a "fashionable disease," since habits of indolence and irregularity, the common traits of fashionable life, are so well calculated to produce it.

The mode of exercising the body as a means of cure, is a matter of some importance ; for while muscular effort performed in any manner is of more or less advantage, the greatest benefit can be realized from such modes only as bring into play all the muscles of the body. As to the amount of exercise necessary to be taken, much will depend on the previous habits of the patient. Thus, a person whose system has been accustomed to laborious efforts, would derive but little benefit from a daily walk or a short ride on horseback, while a person who had been raised in a counting room, or whose life had been spent in a study, would at first neither require nor bear any greater exercise. So that the pre-

vious habits as well as the present condition of the patient, should be taken into consideration in prescribing this hygienic measure.

Horseback riding is a very good exercise, as it in some measure brings into action the muscles of every part of the body, and the amount can easily be regulated by extending or shortening the ride. But there is one mode of exercising the muscular system, where patients can be induced to adopt it, which I have found to be preferable to most others, not only because it requires action in all the muscles, but because it associates the idea of usefulness with that of exercise, and enables the patient to feel an interest in what he is doing. I refer to the labor of sawing wood. I have often directed persons to saw their own wood instead of hiring a sawyer, and whenever my direction has been followed, the dyspeptic has realized much benefit from the exercise. I have even had females exercise in this way when it was inconvenient for them to do so by other means. Females, however, who have the care of a household, will seldom lack occasion for ample exercise by attending to their domestic affairs, an employment of which no lady should be ashamed. Riding in a buggy is pretty good exercise on some of our Western roads, but where the road is smooth it has but little advantage, except that it affords opportunity for breathing fresh and pure air; which is indeed an important consideration. In whatever way the patient may exercise, he should do so regularly, and never to the extent of producing exhaustion or much fatigue. Exercise should not be taken just before nor immediately after meals, as it diverts the nervous forces from the stomach to the muscles brought into action, and thus interferes with digestion; and the same remark is true of mental effort under such circumstances. When it is necessary for the stomach to perform its function, the patient should desist from much physical or mental exercise, and thus avoid this perturbation, which is inconsistent with the concentration of the energies of the system requisite to digestion.

To *sum up* the indications in this affection as regards the habits of the patient, I will say, let his food be plain, simple, and nutritious; let him observe constant regularity in his meals and hours of exercise and rest. About three meals a day at regular hours, exercise between the meals, going to bed early,

and rising early in the morning, and partaking freely of pure air, will comprise the outlines of the hygienic prescription to be made for indigestion, dependent on gastric debility.

The *medicinal treatment* must necessarily be of a very simple character, and may be comprehended in two general expressions; mild aperients, if the system requires them, and gentle tonics. These are the principal means, in a medicinal point of view, upon which you will rely in the treatment of that form of dyspepsia, which we are now considering; but you must bear in mind the essential difference between this form of indigestion and that which is associated with irritation of the stomach. But enough was perhaps said on this subject, while speaking of the latter form, and I merely refer to it here, to reimpress your minds with the importance of due discrimination between the affections.

As a means of preparing the way for a more speedy cure, it may be necessary, if the bowels are torpid or sluggish, to premise your tonic remedies with a free evacuation of the alimentary canal; but in this you should be governed by circumstances. If the stomach is healthy, with the exception of debility, and if there are no morbid secretions or indigestible ingesta, it will not be necessary to subject the patient to the operation of an emetic; yet I can scarcely conceive a case where it would do much injury. It would certainly arouse the stomach to greater activity; still, unless pretty clearly indicated, I should not generally employ this measure in these cases; and never where there are constitutional peculiarities rendering emetics objectionable. A thorough cathartic will generally be sufficient, and can scarcely be amiss in any case of the kind now under consideration.

Having removed accumulations, and to some degree aroused the stomach and bowels to increased activity, you should follow up the impression thus made, by the use of such medicines as will give tone to the digestive organs, and secure and sustain a proper degree of activity in the whole alimentary canal, and organs connected with it. To meet these indications, I am in the habit of prescribing a preparation of which I have frequently spoken before, and which may be properly called empirical, if that term be used in its true sense as descriptive of a remedy tested by experiment; for by long experience I have demon-

strated its efficiency, having scarcely ever found anything else necessary. I refer to the Restorative Gin Bitters (Bone's Bitters) of our Eclectic Dispensatory. It is the recipe which has been heretofore given, to be administered in doses varied to suit the age, constitution and condition of the patient. If there is a torpor of the liver, or a tendency to costiveness, add a small quantity of podophyllum to the bitters, just sufficient to produce one free movement of the bowels every day, and this will be about all the medicine you will find it necessary to employ. It is scarcely necessary to dwell here on the combined properties of this preparation, or to explain in what manner it fulfills the various important indications which it does. It certainly possesses very excellent tonic properties, arousing the stomach from the inactivity into which it has sunk from exhaustion and debility, and giving it tone and sustaining it in the efforts requisite to digestion. It also acts on the liver, and where the biliary secretion is impaired, as is usually the case, is a sufficient corrective. It is an efficient diuretic and will soon manifest a beneficial influence on the renal secretions. It is a diaphoretic, producing gentle perspiration, and it also possesses expectorant properties, and is therefore useful where there is torpor of the bronchial mucous membrane. It therefore fulfills more indications than any ordinary preparation, and, although not concocted according to any preconceived theoretical dogma, it is commended to your consideration by a much more valuable indorsement, the practical, daily experience of those who have tested its virtues.

Sometimes cases occur in which other simple means become necessary, which I will mention. If the patient has a tendency to diarrhoea and acidity of the alimentary canal, I would administer instead of the bitters, our compound neutralizing medicine combined with the bark of wild cherry, (*Prunus Virg.*)

Sometimes there will be connected with this form of indigestion, a number of anomalous symptoms, which may prove embarrassing to the young practitioner. I have already referred to the extensive sympathetic relations of the stomach with the other organs of the body. Owing to these sympathies the stomach is liable to be affected by causes remote from it. Hence it is not at all uncommon for a dyspeptic condition of the stom-

ach to be connected with uterine difficulties. Where this is the case your attention must of course be directed to both of the affected organs, but your remedies should have special reference to the primary difficulty. If the uterine derangement be merely secondary to the gastric and general debility, the ordinary treatment for dyspepsia, with judicious correlative measures directed to the uterine system, will be sufficient. On the other hand, where the difficulty originates in uterine disease, the cure of this will be a prerequisite to the removal of gastric disorder.

The stomach also sympathizes very strongly with the brain, and over-taxing the latter organ is often the cause of gastric debility and consequent indigestion. In such cases it will be necessary to proscribe mental labor and study, and have the patient engage in moderate physical exercise. Indigestion is sometimes dependent, also, on disease of the spinal cord, and this fact should never be overlooked. I shall hereafter have occasion to speak at large of spinal disease, but I refer to it here as occasionally associated with gastric debility. Where such is found to be the case, it will be necessary to cure the spinal disease before you can remove that of the stomach.

A form of indigestion is sometimes encountered which will not yield to the means to which the affection is usually amenable, but which will be overcome very promptly by the administration of quinine and morphine in efficient doses. This is where the dyspeptic symptoms depend on *neuralgia*, which will usually be recognized without difficulty. The quinine and morphine should be given for a day or two and then suspended, to be repeated if necessary.

There is a symptom which I believe I have not mentioned, which occasionally attends this form of disease, especially during the efforts of the stomach to perform the function of digestion, and that is, spasm of the muscular coat of the organ; and I think I have seen patients suffer as severely from this symptom as from any other cause of pain. I have known the most lion-hearted persons utter groans under the agony of these spasms. In such cases I have always found our sudorific tincture to afford prompt relief.

LECTURE XXVI.

ENTERITIS: INFLAMMATION OF THE SMALL INTESTINES.

Synonyms — Parts Involved — Symptoms — Diarrhœa — Character of Stools — Febrile Symptoms — Prognosis — Post Mortem — Causes — Diagnosis — Treatment for various Causes — Cold — Acid Accumulations — Excessive Bile — Malarial Fever — Diet. CHRONIC ENTERITIS: Symptoms — Treatment. DIARRHŒA: Symptoms — Causes, &c. — Treatment for over-loaded bowels — Treatment for Atony.

The subject for consideration this morning is Inflammation of the Small Intestines. The term *Enteritis* is perhaps the best name we can employ to designate this disease, but as the word literally signifies inflammation of the bowels generally, it may be well in the outset to restrict it to the signification with which it will be employed in this lecture. Modern writers have divided the alimentary canal below the stomach into three sections in relation to inflammation, and designate that affection as it occurs in these different sections by the following terms, namely: *Duodenitis*, for inflammation of the duodenum, *Enteritis*, for inflammation of the jejunum and ileum, and *Colitis* or *Dysentery*, for inflammation of the large intestines. The first of these I shall not discuss separately, as the duodenum is very seldom if ever diseased alone, and if it is, there is no satisfactory diagnosis of the fact, and no indications of treatment, differing essentially from those pertaining to the affection where the stomach or intestines generally are involved. With this exception, therefore, I shall pursue the arrangement just mentioned, and shall apply the term *Enteritis* to inflammation of any portion of the mucous

membrane of the small intestines. Peritoneal inflammation was formerly embraced under this title, but as we shall consider that as a distinct affection under the name of peritonitis, it is not comprehended within the signification of *Enteritis* as now employed. From the fact that the inflammation of which I am about to speak is most frequently located in the ileum, it has by some authors been denominated *ileitis*, and by others *ileo-colitis*, from the fact that the colon is apt to be more or less involved when the ileum is inflamed. Let us not, however, be confused by a multitude of names.

I repeat, then, that the subject of the present lecture is *Enteritis*, or inflammation of the mucous membrane of the small intestines. It is somewhat difficult, however, to conceive of inflammation as existing for any length of time in any portion of the alimentary track, without being extended by continuous sympathy to other portions of the mucous surface of the tube. Hence it is, that inflammation of the small intestines, and especially of the ileum, is almost always extended in protracted cases to the colon, with the diagnostic symptoms to be mentioned presently.

The two extremities of the small intestines, or the duodenum and ileum, are more liable to inflammation than the jejunum. The last mentioned portion appears to be very seldom the seat of disease, although it would appear at first thought to be as much exposed to irritating influences as either of the others. But the duodenum is in more direct association with the stomach and liver, and consequently more liable to be sympathetically affected when they are diseased. The ileum too is situated in a position which will readily account for its liability to irritation and inflammation. The constriction of this portion of the tube at the lower part, and especially at its entrance into the cœcum through the ileo-cœcal valve, is certainly calculated to retard the progress of the intestinal contents, and hold them longer in contact with the mucous surface, and thus subject it more fully to the action of any irritating substance which may be present, than in the upper portion of the tube.

Symptoms. Inflammation of the mucous membrane of the small intestines usually commences with uneasiness, often ob-

scure in the commencement, but gradually increasing until positive pain of a griping character, and more or less constant, is felt about the centre of the abdomen. The most severe pains will be felt, generally in paroxysms, with a constant sensation of distress between them. The griping is sometimes so severe in children as to cause convulsions, and in adults the suffering is often very great. In other cases, however, there is but little pain. Sometimes the pain, instead of commencing gradually, is violent from the first. The uneasiness, I have said, is usually felt about the centre of the abdomen, or umbilical region; this, however, depends in some measure on the locality of the attack; if the inflammation is in the duodenum or first portion of the jejunum, the distress will be felt higher, more deep seated, or possibly referred to the back; whereas, in case the ileum is the part affected, and especially the lowest portion of it, the pain will be in the hypogastric, extending also into the right iliac region. There is usually more or less tenderness under pressure, corresponding in some measure to the amount of pain experienced; and this symptom serves perhaps better than any other in fixing the location of the inflammatory lesion.

Diarrhœa is a very common symptom of enteritis; being rarely absent, unless in cases where the disease arises from obstruction. If, however, this symptom has not appeared, it may at any time be easily produced by the mildest purgatives, which is a circumstance calling for great care in respect to their use. The evacuations are somewhat peculiar, and their character should receive attention. If the disease is confined to the small intestines, they will be watery, generally of a dirty yellow color, and containing but little mucus, comparatively; but when the colon is likewise involved, there will be more mucus, and that often mixed with blood, in the discharges. Such an extension of the inflammation into the colon will also be marked by tenesmus and by the more severe bearing down pain of dysentery, in addition to the griping, twisting, or cutting pains of enteritis. Of course, the evacuations will at first be mixed with fecal matter, but when this shall have passed off, they will assume the sero-mucous character of which I have spoken.

In some instances the stools are decidedly bilious during the whole progress of the disease, indicating that the liver has taken on a sympathetic action. This is more apt to be the case where the duodenum is involved in the inflammation, or becomes highly irritated. More commonly, however, there is a deficiency of bile in the evacuations. When bile is present it is apt to be changed, so as to impart a greenish color to the dejections. It is, therefore, important that you give special attention to the character of the evacuations, so much is to be learned therefrom respecting the real condition of your patient; and as I said on a former occasion, I now repeat, that you should not trust others to examine the matters discharged and rely upon their reports, but see and examine for yourself. I have rarely found even a physician who observed with the scrutiny necessary to the formation of a correct judgment, as to the amount of bile, its character, and the other peculiarities of evacuations in diseases of the bowels, which serve as the basis of true diagnosis.

The bowels are not usually bloated or distended with gas, to the extent of producing tympanitic symptoms, but occasionally, and especially in children, and in very protracted cases of adults, this symptom is present. Generally, the abdomen is in a collapsed or sunken condition.

Febrile symptoms are usual accompaniments of enteritis, but they are not generally as intense as in many other cases of inflammatory disease. We usually find the pulse somewhat accelerated, but open and full; very unlike the rapid quick pulse characteristic of peritoneal inflammation. The skin will be more or less hot and dry, the tongue moist, and slightly coated, and the urine scanty and highly colored.

The febrile symptoms sometimes precede those of local disease, in which cases they are usually more prominent, as the reaction is apt to be much greater; and it is very common under such circumstances to find the fever exhibiting the remittent character; coming on with the initiatory symptoms of bilious fever and presenting more or less marked remissions. This complication of enteritis with periodic fever, is especially frequent during the prevalence of the autumnal fevers in this western country, as will be verified by every intelligent and experienced practitioner in

this region. Where this is the state of the case, there should be no hesitancy, I think, as to the course to be pursued, after what I have so frequently reiterated in similar relations. Arrest the periodic fever before you advance another step, and in nineteen cases out of twenty the inflammation will yield at once. On the contrary, if you undertake to treat the inflammatory disease first, you will soon, in all probability, have a troublesome case on your hands; and if you do not lose your patient you may deem yourself fortunate.

The general character of this disease is mild and its *prognosis* favorable. Where there is but little pain, diarrhoea, or fever, it usually terminates in health in a short time, even without treatment. Where the symptoms are more severe, it generally yields with readiness to simple, but appropriate treatment, whether the inflammation is a primary affection or a secondary one, resulting from fever. Though some cases, of the latter description especially, and under improper management in the beginning, assume a very grave character.

Where this is the case, and indeed where, from any cause, the disease assumes an unfavorable aspect, the symptoms I have described become aggravated. The pain increases as the inflammation extends; the discharges become more offensive; the colon perhaps becomes involved, with all the symptoms of dysentery; or the stomach becomes implicated, as demonstrated by nausea, vomiting, pain and tenderness in the epigastrium; the skin and eyes become yellow, indicating involvement of the liver, or at least closure of the bile duct; the tongue becomes red and dry; the brain and nervous system are affected; delirium perhaps appears; the pulse is frequent and feeble, and the patient gradually sinks, from prostration, or suddenly dies, owing, it may be, to perforation of the intestine, or to mortification. If the case does not prove fatal it may run into the chronic form of inflammation, or the patient may recover after a tedious and prudently managed convalescence.

The *post mortem* developments you can perhaps readily anticipate. They do not materially differ from those following inflammation of the mucous membrane of the stomach. Generally, the appearances will differ in different localities, presenting, it may be,

the evidences of every degree of inflammation, from redness and thickening of the mucous membrane, or enlargement and injection of the follicles, to extensive and deep ulceration, or, occasionally, gangrene and sloughing. Generally speaking, the depth of the ulcers will depend on the violence and duration of the inflammation. In some instances they barely involve the mucous membranes; in others they pass through the submucous tissue, the muscular, and occasionally the peritoneal coat, producing perforation of the intestine, which, if it does not produce sudden death, will result in peritoneal inflammation, and finally in death, with scarcely any exception. Sloughing or gangrene is sometimes found, though rarely, perhaps because the disease wears out the powers of life before the point of disorganization is reached.

The *causes* of this disease are numerous and various. A very common cause is exposure to cold. I am familiar with a number of individuals who have apparently no other predisposition except to disease of the bowels, but in whom the slightest exposure will frequently develop this affection, with more or less violence. There is perhaps in a majority of individuals some predisposition to morbid affection in some organ of the system. The weak point may be the lungs, the brain, the liver, the stomach, or some portion of the intestines, or indeed any organ of the body, and wherever the predisposition to disease exists in an organ, slight causes may suffice to develop it. Some persons think they never "take cold" because they never are troubled with a cough, but perhaps these very persons will take inflammation of the bowels upon sudden exposure to cold or by getting wet in a shower. And in order to "take cold," a very vague expression, by the way, it is not necessary that the individual shall be exposed to a low degree of temperature. I need not make the remark that there is no such thing in existence as "cold," but that the word simply indicates the absence of heat, and has merely a relative signification. If you pass from a room heated to 100 degrees Fahr. into one in which the thermometer stands at 70°, you are exposed to a greater transition, than by passing from an atmosphere at 50° into one where the mercury stands at the freezing point. It is the sudden vicissitude of temperature which destroys the equilibrium of the system, and develops disease at the weak point.

A very common cause of enteritis is the sudden recession of eruptions from the surface. This is especially frequent with children that have any of the exanthematous diseases ; or the eruption commonly called "rash," which is itself dependent on gastric and intestinal derangement. It is also said to result from metastasis of gout and rheumatism ; which is not at all improbable ; and cases believed to be of this nature are generally attended with very distressing symptoms. It may result also from the suppression of accustomed discharges.

Another frequent cause of enteric inflammation is the presence of irritating substances, such as indigestible articles of food, which, having resisted the action of the stomach, have passed in a crude or slightly altered form into the small intestines, where they irritate the mucous membrane until inflammation is developed. Acrid or morbid secretions, especially vitiated bile, are doubtless often the cause of inflammation of the bowels. I have seen many cases where I was confident the whole difficulty resulted from acidity in the biliary secretion, and which would not be relieved until this secretion had been corrected. Accumulations and induration of the ordinary contents may occur from inactivity of the bowels and produce inflammation. Relaxation resulting in intussusception or invagination, and strangulation from hernia, &c., are also causes of inflammation of the small intestines.

I need scarcely add that enteritis is a frequent attendant on other affections, general or local, as fevers, whether malarial or contagious ; consumption, gastritis, hepatitis, &c.

The *diagnosis* of enteritis is not very difficult. The two principal affections with which it is liable to be confounded are peritonitis and colic. From peritoneal inflammation it may be distinguished by the fact that diarrhoea, a very usual symptom in enteritis, is seldom present in peritonitis ; on the contrary, constipation generally attends the latter disease. In peritonitis there is almost invariably tumefaction or a tympanitic condition of the bowels, with tenderness over the whole abdomen ; while in enteritis there is seldom much tympanitis, and the tenderness is generally circumscribed, or at least most severe in a limited space. Nausea and vomiting are usual in peritonitis, but not in enteritis, unless gastritis exist at the same time. The pulse affords a very marked

distinction between these two affections ; in enteritis it is not very frequent and is open and full, while in peritonitis it is small, rapid and hard. By attention to these various peculiarities you will have little difficulty in distinguishing between inflammation of the mucous and serous surfaces of the intestines.

From colic this disease is distinguished also by very clearly marked symptoms. The absence of diarrhœa and of febrile symptoms in colic, and the fact that pressure on the abdomen rather relieves than increases the pain, are sufficiently diagnostic circumstances upon which to base a satisfactory opinion.

The *treatment* of enteritis will of course depend very much on the producing cause, and I will give the leading indications presented by the disease under different origins.

If you have a case which is produced by exposure or "cold," without evidence of accumulation or other causes of obstruction to be removed ; with no invagination of the intestines to relieve, and no recession of eruptions, nor translation of gout or rheumatism to be diverted, but a plain, simple case of inflammation arising from cold, is it not perfectly clear that such treatment as shall establish the cutaneous transpiration and equalize the circulation, will be likely to remove the disease ? Secure a general and copious perspiration, and employ revellants to attract the circulation to the surface, and you will in most cases relieve your patient immediately. I have seen cases relieved in one or two hours by the administration of our sudorific tincture. This preparation allays the irritability of the bowels, and powerfully determines to the surface, thereby equalizing the circulation. Let a sinapism be applied over the bowels as long as it will be borne, and followed by hot fomentations after its removal ; and let hot bricks be applied to the feet. Let the sudorific tincture be given in drachm doses once in two or three hours with warm tea, as balm, catnip or the like, and let this be continued until a copious perspiration is brought about over the whole surface, and kept up for an hour or two. This will generally be all the treatment required to arrest this form of enteritis.

Where the disease is produced by acrid accumulations in the intestinal canal, the first indication is the removal of such accumulations. In the selection of an article to fulfill this indication, it

is important that you exercise discretion ; for while it is necessary to have an agent that will certainly accomplish the object, it is equally important to avoid any thing like a drastic or irritating purgative. I know of nothing better adapted to this state of things than our neutralizing physic ; for while it operates mildly in the removal of accumulations, it effectually neutralizes all acidity and thus diminishes materially the irritating tendency of the intestinal contents. It should be given in sufficient doses to act effectually, and repeated until the bowels have been freely evacuated ; which will generally be effected by about two drachms of the powder, digested in a pint of water, strained and sweetened with loaf sugar, and given in four doses with an interval of an hour and a half between. Frequently, sufficient action will be produced by the first or second dose. Meantime, other means, adjuvant to this, may be employed with benefit, such as counter-irritation and fomentations as just recommended under the other cause. After the removal of all irritating substances from the bowels, you have a case of simple inflammation of the mucous membrane of the bowels, which is to be managed by means of the most soothing treatment adapted to allay irritation. Mucilaginous drinks, with small doses of morphine ; injections of starch with small portions of laudanum, especially where there is diarrhoea, and dysenteric symptoms ; perfect repose and very light diet, are about all that will be necessary.

If you have a case of retrocession of an eruption from the surface, your treatment will be counter-irritation and gentle diaphoresis. Hence a large sinapism over the abdomen, followed as before mentioned by hot fomentations, is indicated, with such other revulsive measures as are familiar to every practitioner ; and internally, moderate doses of the diaphoretic tincture. If it is from translated rheumatism or gout, let counter-irritation be applied to the whole length of the spine, and if the particular location of spinal irritation can be detected—as it often may be by pressing upon the roots of the spinal nerves successively, until a tender point is discovered—let a dry cup be applied to that point and then apply a sinapism to the same part.

If the disease is produced by an excessive secretion of bile, you should administer small doses of podophyllin and leptandrin

combined with diaphoretic powder. In this prescription you secure the stimulating influence of the podophyllin and leptandrin in exciting healthy action of the liver, combined with the anodyne influence of the diaphoretic powder. If diarrhœa be an urgent symptom, you may, instead of the diaphoretic powder, give the tincture of catechu and paregoric, combined in equal quantities, in drachm doses as often as necessary.

If it is dependent on intussusception or invagination of the intestine, your success must of course depend on your ability to relieve this condition. This is a difficult case, and I shall speak of it more fully hereafter. I will remark, however, that I have relieved this difficulty by introducing as far into the rectum as practicable, the tube of a stomach pump, and filling the intestines with water. If the invagination is at or below the ilio-cœcal valve, this is pretty certain to reduce it; and if it is above that point, although your injection may not reach it, yet by the distension of the colon and the movement in the intestinal convolutions thereby produced, you may cause a reduction of it.

Another means which has been employed is the applications upon the abdomen, of a vessel, as a large tumbler, in which a partial vacuum is produced by burning a pledget of cotton within it. Or, in an extreme case, the receiver of an air pump might be employed. Such means are said to have produced successful results.

But where the cause of inflammation of the bowels is malarial fever, the case is a plain one. Before you proceed a single step in the treatment of the local inflammation, arrest the periodic fever and in nineteen cases out of twenty the inflammation will yield at once. On the contrary, if you undertake to treat the inflammatory disease first, you will soon, in all probability, have a troublesome case on your hands; and if you do not lose your patient you may deem yourself fortunate. The remedies for the arrest of the fever have been already fully set forth, and should the inflammation have proceeded too far to terminate spontaneously, such treatment as has been directed for simple enteritis will of course be indicated.

The *diet* in this disease, under all circumstances, must be rigidly simple and bland, and the patient must be kept still; this, how-

ever, is not generally a difficult matter, for with symptoms at all severe, he will be disposed to take and keep to his bed.

CHRONIC ENTERITIS.

Enteritis often assumes a *chronic* character, and then the mucous surface of the whole intestinal track is very apt to be involved. This chronic form of enteritis was quite prevalent among the soldiers who returned from the recent campaigns in Mexico. I have seen a number of these cases, and a brief description of them may not be out of place here, as they will serve as marked instances of that form of disease of which I am now speaking.

The symptoms in all these cases were as follows: a red tongue, and the color was not confined to the edges and tip, as in ordinary cases, but the whole tongue and mouth was as red as raw beef; a tympanitic condition of the abdomen with soreness under pressure; there was generally extreme emaciation, with a small and frequent pulse, and everything to be observed indicated, very conclusively, marks of extensive and protracted disease; the skin was dry and parched, the extremities cold, the appetite in most instances entirely gone; the thirst urgent, the urine scanty and high-colored, and there was generally more or less irritation of the lungs, causing a troublesome cough. The discharges were of a dirty watery character, with which matter of a slimy appearance was mixed; showing plainly that ulceration of the mucous follicles existed.

These cases were produced by protracted attacks of bilious fever with bad treatment; and it often follows cases of this kind, where active, drastic purgatives have been resorted to in the early stage of the disease; but wherever the febrile symptoms are promptly removed, you will rarely find any such effects following malarial fever.

The *treatment* of this form of inflammation, is unquestionably of more importance to you than anything else I can further say in regard to it; for you will seldom have any difficulty in forming a correct diagnosis in these cases. I have had occasion to treat a number of the cases from Mexico, and though some of them were tedious, recovering very slowly; yet every case to

which I have been called has got well. One case of the kind, I will particularly mention, which had been treated during two years by a number of physicians, and given up as hopeless. He was extremely emaciated, with an almost black appearance of the skin: there being large dark spots over the whole body, while the intervening surface presented by no means a healthy appearance. The tongue, evacuations, and symptoms generally, were very much as I have just described them in my general remarks. I put this patient upon a very simple, mild course of diet, such as rice, and stale bread, with no animal food, and administered our neutralizing cordial, to which was added a small portion of wild cherry bark to be taken in doses three times a day.* I had him bathed regularly in whisky and broke water; and in addition applied one of our irritating plasters to the whole abdomen. This irritating plaster differs materially in its effect from other irritating applications; for while it makes a sufficient impression upon the surface, equal to that of any other, it may be borne with impunity, as it does not produce debility, nor constitutional disturbance. Tartar emetic exhausts the patient, without producing nearly so beneficial a local effect. In connection with these means the compound tincture of catechu and paregoric in equal parts was administered once or twice a day, not to arrest but to restrain the looseness of the bowels; for in all these cases the more frequent are the evacuations, the more will the patient be reduced, and the longer will the disease continue.

If the liver is torpid it usually returns to its proper function when the local difficulty is removed; but if it should not, it may be excited to healthy action by a small dose of podophyllin, leptandrin and ext. taraxacum combined in the form of a pill, taken daily on going to bed. With this course of treatment, varied of course to meet peculiarities, I have usually been successful.

| | |
|-------------------------|----------------|
| * R Rhubarb, pulv. | } <i>āā</i> 3j |
| Mentha pip. pulv. | |
| Wild Cherry Bark, pulv. | |
| Bi-Carb Potass. | |

Digest in boiling water Oj. Add loaf sugar 3j. Brandy half a gill.
Dose fl 3j.

I cannot avoid advert^{ing}, in this relation, to the treatment pursued in similar cases in the Commercial Hospital of this City under the medical oversight of the faculty of the Medical College of Ohio. I had an opportunity last winter of seeing a well defined case of this description under their management in that hospital, and I would appeal to every honest man of common sense, whose natural judgment is not swayed by professional prejudice or false teaching, and who will examine the records of that hospital, to say whether the treatment there employed is not opposed to sound philosophy; especially when taken in connection with the bills of mortality following it. Very few of the unfortunate individuals who entered that institution with this disease ever left it, except to be carried to the grave.

DIARRHŒA.

This term signifies literally “pouring through,” and is applied to purging in general. Consequently we have, as has been shown, diarrhœa dependent on inflammation or irritation of the small intestines; diarrhœa connected with typhoid fever, &c., and we shall hereafter have occasion to speak of diarrhœa connected with and dependent upon chronic colitis or dysentery, hepatic disease, epidemic cholera, cholera morbus, cholera infantum, &c. In this place I only propose to call attention to a form of diarrhœa which does not depend on local inflammation or irritation, nor active constitutional disease. The affection of which I now speak appears to be dependent on mere debility of the bowels, either habitual or temporary.

Debility or *atony* of the bowels may in one sense be merely *relative*, that is, there may be sufficient tone or energy in the organs to enable them to perform their functions in a healthy manner under ordinary circumstances; but when an extra duty is imposed or a slight perturbing influence brought to bear upon them, their weakness will be manifested. Thus among persons accustomed to overload their stomachs with food, you will occasionally find one whose meals are habitually followed by semi-fluid alvine discharges. This has been denominated *crapulous diarrhœa*. Again you will meet with many persons who cannot bear sudden intelligence, whether joyous or sorrowful, nor experi-

ence alarm, anger, nor any other **strong** mental agitation without an attack of diarrhœa. The vessels of the mucous membrane appear to be suddenly relaxed in both these forms and an extra quantity of serum thrown into the bowels, while the peristaltic motion is increased by the presence of the food in the one case, and by nervous excitement in the other, and a diarrhœa is the consequence. The same consideration will account for the diarrhœa sometimes occurring in hysterics.

The *treatment* for this affection is very simple. Where the bowels are overloaded they should of course be relieved by a cathartic, for which purpose the compound neutralizing physic is very appropriate. A dose of castor oil would also answer the same end. Beyond this, a prevention of the cause, whether that be improper eating or nervous excitement, will of course be necessary; which, together with some gentle tonic, combined, if need be, with an astringent, at first, will be all-sufficient. The infusion of staphylea in table-spoonful doses four or five times a day will be all the tonic necessary, and where an astringent is found necessary, an infusion of marsh rosemary, of *Geranium maculatum*, or of blackberry root may be employed.

But there may exist a state of *positive atony* or debility, in which there will be habitual diarrhœa without pain, fever, excitement of the pulse, redness of, or fur on the tongue, or any other symptom indicative of inflammation or irritation. This condition is often found to remain, following febrile and inflammatory diseases, long after all symptoms of such disease have disappeared. But it occasionally occurs without any previous irritating cause of which you can become aware.

The nature of this difficulty appears to be a relaxed condition of the secreting vessels of the mucous membrane, so that they are unable to retain the fluids forced into them by the circulating current, and hence, instead of the moderate amount of moisture necessary to mollify the food and lubricate the tube, there is discharged into the alimentary canal a large amount of serum, with portions, it may be, of fibrin, or even the red globules, which, imparting a watery if not a bloody character to the contents, is passed off, constituting a diarrhœa of pure debility. This tendency is much heightened by an anæmic condition of the

circulating fluid, and where it becomes much increased a passive hemorrhage may be the result. The appearance of the discharges is, of course, variable. Their color may be light, yellow or green, according to the quantity and quality of the biliary secretion.

The treatment in these cases will depend very much upon the circumstances in each case. If the liver is torpid, a very small pill, say $\frac{1}{8}$ gr. podoph., $\frac{1}{2}$ gr. leptand., and q. s. ext. tarax., should be taken once or twice a day. The bowels may be held in check and their motions properly regulated by our compound neutralizing cordial, aided if need be by some efficient astringent, such as tannin, infusion of marsh rosemary, *Geranium mac.* or blackberry. In connection with these remedies the infusion of staphylea may be relied upon as a tonic, or in its absence, the quassia, columbo or gentian may be employed. In some cases an infusion of cinchona may be of much advantage.

The diet must be light and easily digested, but nourishing and taken regularly. The daily use of the cold or tepid bath, followed by brisk friction over the whole surface, and moderate daily exercise in the open air, will also be very important in restoring general tone to the system. When there is an impoverished condition of the blood, one of the preparations of iron, in connection with the other remedies named, will be highly proper.

I have brought in this subject, in this place, not because it belongs in reality to the class of diseases we are considering, but because the diarrhœa may mislead you into a mode of interference which would be highly injurious, unless you were warned of the fact that this symptom does not necessarily imply inflammation or irritation.

LECTURE XXVII.

DYSENTERY: INFLAMMATION OF THE LARGE INTESTINES.

Synonyms—Acute Dysentery—General View—Modifications and Varieties—Symptoms—Local—General—Caused by Worms in Children—Adynamic Form—Associated with periodic Fever—Prognosis—Causes reviewed—Post Mortem—Treatment—Where caused by cold—By irritating substances—For Derangement of Stomach—Emetic Recipe—Injections—Treatment in late stage—Where caused by Worms—Epidemic Form—Antiperiodic Medicine—Obstinate Cases.

We come now to the consideration of DYSENTERY. This disease has received various names among medical writers, such as *Colitis*, *Colo-rectitis*, &c., and it is known in various parts of the country, as flux, bloody-flux, &c. It is, however, more generally described under the term dysentery than any other, and as this is a convenient name, I shall employ it. It is necessary, however, to be aware that many persons are entirely ignorant of the distinction between diarrhoea and dysentery; for if you rely on the term as employed by patients or their friends you will often be misled.

The inflammation in this disease may be located in the rectum alone, but most generally the colon is also involved to a greater or less extent. It is characterized by mucous and bloody discharges, accompanied by severe tormina, or pains in the lower part of the bowels and tenesmus, and generally with constitutional disturbance. It is with great propriety divided into the two forms, acute and chronic dysentery, the former of which will first occupy our attention.

ACUTE DYSENTERY.

This disease may commence without premonitory symptoms, but it is generally preceded by more or less constitutional disturbance, indicated by general lassitude and uneasiness, with pains in the abdomen, either sharp and transient, or dull and persistent, and by constipation or diarrhoea. There is always considerable febrile reaction, if the case is at all severe, but this may not appear until the local inflammation has become established. But the circumstance under which the Western physician is most frequently required to manage dysentery, is where it is associated with malarial fever, in which case it is often, though not always, preceded by the development of the periodic fever. I say it is not always preceded by the fever, even where the latter presents very clearly the periodic character; for the inflammation may be the primary disease, and the secondary fever be rendered periodic by the prevalent malarial influence. But the association of the two diseases is remarkably common, according to my observation, and that of others with whom I have conversed. I have, this morning, learned from members of this class, who have been practitioners in different parts of the country, that this complication is very prevalent in their respective localities. Such, indeed, is the testimony of all who have any experience in the diseases of miasmatic districts, and when dysentery occurs in this form it is generally regarded as most difficult to manage.

When the disease is thus *associated* with *malarial fever*, there will, generally, be a slight chill and febrile reaction, preceded by the incipient symptoms of remittent fever, such as debility, lassitude, disinclination to exercise, uneasiness in the head, back and limbs, and general derangements of the various functions. The dysenteric symptoms, as before remarked, may precede the febrile, or they may occur at any period of the progress of the fever.

Dysentery often occurs as a *sequel* of other diseases, especially of badly managed fevers, such as bilious, congestive and typhoid, where the bowels have been irritated by drastic medicines.

The disease occurs with every grade of severity, from a slight irritation to the most extensive and active inflammation of the mucous surface of the large intestines, and is accompanied by an

equal diversity of symptoms, from those of a mere local character, tending to subside without medicine, to those of the most violent constitutional disturbance, or of a low grade of adynamic disease, as presented in typhoid fever. The violence or malignancy of the disease will depend upon the constitutional peculiarities of the patient, and also on the nature of the producing cause. Hence you will find a great difference in the grade of the disease in different patients, even during its prevalence as an epidemic. Those of robust constitutions and general health, if they take it at all, will usually have a light attack, while debilitated persons are not only more likely to take it but to have it severely.

Symptoms. An early and very common symptom of dysentery, before the disease is fully developed, is a vague uneasiness in the lower part of the abdomen, generally accompanied by diarrhœa. In fact there is no mode of introduction of dysentery more common than by diarrhœa, more or less profuse and protracted. This is very generally one of the earliest symptoms where the disease is prevailing epidemically; but the diarrhœa is under such circumstances accompanied by soreness and a sense of weight and pressure in the lower part of the bowels, by which it is clearly distinguished from the diarrhœa of mere debility. This last mentioned symptom increases as the disease becomes developed, and in severe cases produces the most intolerable distress. It occasions a constant desire to go to stool even after the bowels have been completely evacuated, and the effort to have a passage gives partial temporary relief, although nothing at all, or only a little bloody mucus may be discharged. The frequency of these efforts at evacuation will vary, with the severity of the case, from one in two or three hours to one every five minutes. The *tenesmus*, as this symptom is called, is sometimes attended by such spasmodic efforts of the muscular coat of the rectum that prolapsus ani is produced, especially in children, which is a very distressing and troublesome occurrence. Every evacuation, although it appears to give present relief, tends to increase the irritation, and consequently the desire to go to stool, and the pain and spasm attending the discharges; and the patient should, as far as practicable be induced and assisted in resisting the desire to get up.

The character of the evacuations varies greatly in different

cases. In some they consist of pure mucus, in others of pure blood, and in others still, of mucus mixed with blood, which last is their most usual appearance. Sometimes the discharges seem to be a kind of blood-stained serum, resembling, as I have heretofore described it, water in which fresh meat has been washed. This is a grave symptom, and most common in epidemic dysentery. It indicates a low condition of the vital forces, and a tendency to decomposition in the mucous tissue. The pain and tenesmus are perhaps most severe in cases where the discharges are principally mucus; for where they consist of pure blood the local depletion affords more relief; while the sero-sanguineous evacuations are attended with general debility and severe griping pains throughout the abdomen, but not so much irritation of the rectum. Occasionally, small lumps of hardened fecal matter will be passed, causing much pain, but followed by great relief. But in any case and under all circumstances, this disease, when fully developed, is attended with much distress, more, perhaps, on an average, than any other to be met with in practice.

Connected with the local symptoms I have described, are usually others of a more general character. Unless it be a very mild case there will be pyrexia, whether the affection occur under malarial influence or not. Hence, you will generally find an excited pulse and hot skin, and general derangement of the secretions. The liver is apt to be torpid or else over-excited, and its secretion vitiated; the stomach in severe cases is often affected, causing vomiting. The urine is generally scanty and high-colored, and as the bladder and urethra, sympathize by proximity with the inflamed bowels, much pain is experienced in micturition, often, indeed, amounting to strangury. In females, the vaginal mucous surface often becomes affected, producing more or less leucorrheal discharge.

The pulse of course varies in this as in other disease. It has not generally however the irritated character common to many other inflammatory affections. It is usually somewhat accelerated, but open and full, but differs greatly in accordance with the severity of the local inflammation, and the condition of the general system. You will sometimes find a hard, rapid pulse, with a cool,

clammy skin, which, let me remark, are grave and very alarming symptoms.

The extent of the inflammation may generally be determined by the pain felt under pressure, when made along the course of the colon. If there is soreness in the upper portion of the abdomen it indicates that the transverse colon is involved, and in this case the stomach is very likely to participate in the disease and nausea and vomiting follow. The right or ascending colon may also be inflamed, in which case pressure on the right side of the abdomen will produce pain. Sometimes the ascending, or even the whole colon is affected in the commencement, which is most usually the case where the disease commences with diarrhoea. In other cases the inflammation commencing in the rectum or lower part of the colon is propagated upwards by continuous sympathy until the whole colon, the cœcum, and even the small intestines are involved. In the case last mentioned there will of course be general tenderness of the abdomen, and the usual symptoms of enteritis will be superadded to those of dysentery.

The *tongue*, in simple cases of dysentery, is generally moist and slightly covered with a whitish fur. But where the liver is much deranged it will be loaded with a yellowish coat; and where the stomach becomes involved the edges and tip will be red, and perhaps the surface gashed. Sometimes the coat will come off, leaving the whole surface fiery-red as described in gastritis, especially in the last stage of the disorder.

I have already remarked that the *liver* is generally *torpid*, but that occasionally there is an *excessive discharge of bile*. This is indeed the first symptom in some cases, where the diarrhoea is of a bilious nature, and the acrid character of the secretion acts as an irritant upon the mucous surface, and thus produces inflammation. Cases of this kind are usually denominated *bilious dysentery*.

Dysentery in children is sometimes caused by *worms*, in which case the attack is preceded and attended by the usual symptoms denoting the presence of *worms* in the alimentary canal.

There is another form of the disease to which I may as well refer in this place as any other. It is the *adynamic dysentery* of the books, being thus named from the deficiency of vital energy in patients affected by it. It is usually found in armies, hospitals,

and densely populated cities, where disease is produced by the decomposition of animal matter and the absence of a free circulation of fresh, pure air. It is characterized by a small, frequent pulse, and usually preceded by diarrhoea. The skin is cool in some cases, in others there is a pungent heat, but always a manifestly low condition of the capillary circulation. Dark livid spots are often seen on the surface, and sometimes elevations resembling the petechiæ of typhoid make their appearance. The disorder, very often partakes evidently of the character of dysentery proper and typhoid fever, and is without doubt the result of causes, calculated to produce the one, acting on the system conjointly with those tending to develop the other. Dysentery in this adynamic form is not an uncommon sequel of typhoid and congestive fever, and it is always to be regarded as a very grave form of disease.

I have already spoken of this affection as associated both primarily and secondarily with periodic fever. I will take occasion here to add that where the disease occurs in such a location and at such a season as to suggest the probability of malarial influence, it is perfectly safe to treat it as resulting from that cause, even where no distinct periodic features are presented. I have adopted the plan of treating the disease under such circumstances with a distinct reference to the malarial origin, without even waiting to discover a periodic tendency, and I have abundant reason to be gratified with the results.

Another form of dysentery, said to occur occasionally, is where the disease results from a translation of rheumatism. Those of you who were in attendance last winter saw a pretty well marked case of this kind in the Commercial Hospital. This form may be known, generally, by its being preceded by a rheumatic condition of the system, perhaps seated in some organ or location, and by a sudden metastasis of the reflected irritation from its former seat to the large intestines.

The *prognosis* in dysentery will of course depend on the violence of the symptoms, and its complication with other affections. Occurring alone, and in the usual form, especially where there is no epidemic influence, the prognosis may be regarded as decidedly favorable; it is not under such circumstances difficult of removal.

But where it is associated with certain other diseases, or follows typhoid or congestive fever, it may be regarded as a very dangerous disorder, though not necessarily fatal, as prompt and judicious treatment will generally prove successful even in these grave forms.

I think, indeed, that we should set down the general *prognosis* of dysentery as favorable, for I am confident that not more than two per cent. of all the cases of it should be lost. You may perhaps suspect this to be a hasty estimate, but I assure you I speak advisedly; being sustained not only by the results of my own practice, but also by those of others who have pursued what I regard as a proper course of treatment.

The *causes* of dysentery have been already mentioned in speaking of it in its various forms; still it may not be amiss briefly to recapitulate them here. So far as regards sporadic dysentery, cold may be stated as a frequent cause. Persons naturally predisposed to irritation of the bowels, or in whom such a predisposition may temporarily exist from any cause, may, by sitting in a draft of air, or on the damp ground, bring on an attack of dysentery. Another frequent cause of the disease is the presence of acrid and indigestible substances in the alimentary canal. These may consist of articles swallowed as food, but which, not being digested, have passed into the intestines and produce irritation, especially if detained in their progress, as they are likely to be, in the pouches of the colon. Or the irritating materials may be the production of vitiated secretions of the liver, pancreas, mucous follicles, and intestinal glands. The great prevalence of intestinal diseases generally in the summer season, and especially among children is, I am confident, owing mainly to the habit of eating indigestible vegetables so common at that season. The summer complaint, as it is familiarly called, among children, is very commonly due to this cause, and it is often kept up and aggravated by the continuance of the cause until cure is beyond hope. The effect is nearly as bad for the mother who is nursing to eat such food, as to feed it directly to the child.

But the most serious and important cause of dysentery is the epidemic influence, associated as it generally is in this country, with malarial poison, and it is in this form of disease that, not

only the reputation of the practitioner, but also the lives of his patients, depends to a very great extent on a correct mode of treatment. Sporadic dysentery will generally get well if left to the unassisted efforts of nature, though judicious treatment will diminish suffering and hasten the recovery; but in epidemic dysentery, where the nervous system is brought under the depressing influence of atmospheric poison, and the blood and all the secretions are thereby vitiated, the tendency is very often from bad to worse until the patient is relieved by the hand of death, made welcome through intensity of suffering. It is in this disease, and especially in this form of it, that the prompt and well directed prescriptions of the physician will be more fully appreciated, perhaps, than in any other condition of the human system.

Upon *post mortem* examination, signs of inflammation are always found in the rectum and lower portion of the colon. The appearances are not uniform in all cases, but vary from mere redness and thickening of the mucous membrane to ulceration, or even gangrene, which may involve the submucous and muscular tissue of the tube. The surface of the bowel is sometimes covered by a coat of coagulated lymph, while in other cases the mucous membrane itself has been removed in patches, probably by extensive ulceration, and the discharge of a slough. As would be inferred from the symptoms described, cases occur in which the mucous membrane of the whole colon, or patches in every portion of it, evince similar signs of disease. The bowels and stomach will also be found in some instances to have been more or less affected by inflammatory action. The mesenteric glands are generally enlarged and softened, where the case has been protracted, and the liver often presents evidence of engorgement and sometimes of inflammation. Occasionally, hepatic abscess may be found, especially in the dysentery of southern countries. In the adynamic form of the disease, the mucous membrane is generally very much changed, and, if not actually in a disorganized condition, verging closely upon it.

In speaking of the *treatment* to be employed in dysentery, I must repeat what has been said in reference to every variety of inflammation. The cause is the most important subject of inquiry. I cannot, certainly, too often reiterate this principle, nor too deeply

impress it on your memory. It is more than folly, it is madness, to attempt the treatment of any disease without reference to the cause that has produced it, where such cause can possibly be ascertained. Nothing shows such want of science, in a practitioner, as does inattention to the origin of disorders for which he prescribes. To be always ready to give a prescription for inflammation, or fever, or headache, or any other affection, without inquiry into such symptoms and facts as may tend to refer the disease to the exciting and even the predisposing cause, is downright quackery. An individual has dysentery, we will suppose, as indicated by frequent bloody discharges, tenesmus and fever. Is it a matter of no consequence whether the disease has been produced by inspissated fæces long retained, by indigestible food, by vitiated and acrid secretions, by translated rheumatic irritation, by malarial fever, or by epidemic influence? If no inquiry is to be made in regard to these questions, and remedies are not to be adapted to the removal of the cause, then leave the case to nature; for she is a skillful physician, and will cure nine-tenths of all these cases unaided, which is far better than the physician will do whose prescriptions have no reference to the cause. He may occasionally succeed in giving assistance, for he may happen now and then to meet with a case *adapted to his treatment*; but who would not rather trust the skill of nature, than be placed in the hands of such a "doctor"?

Where the dysentery *results from cold*, the patient should be placed in bed, and such simple means employed, as may be at hand, and adapted to promote free perspiration. Our sudorific tincture, is an excellent prescription in such a case, and it is about all that will be found necessary to be given internally. As an adjuvant, a sinapism or hot fomentation may be applied to the abdomen, especially over the principal seat of pain. If the pain is severe, a small dose of morphine may be given; or what is better, especially if the motions of the bowels are frequent, an injection of starch and laudanum may be administered, and the patient requested to retain it as long as practicable. This should be repeated after every discharge. Or a pill of opium may be introduced as a suppository into the rectum; and repeated when it comes away. This is more likely to be retained and

control the tenesmus than either of the other modes of administering opiates.

On the other hand, if the disease is produced by the presence of *irritating substances* in the bowels, the first indication is their removal; and for this purpose no remedy is better than our neutralizing physic. This should be prepared by adding about half an ounce to a pint of boiling water, and after steeping some minutes, strained and sweetened; and given in wine-glassful doses every second hour until the cathartic effect is produced. As a substitute for this, where one is desired, I have found half a grain of podophyllin combined with two grains of leptandrin to answer an excellent purpose. This should be repeated once in four hours until it produces a free action of the bowels. When this is accomplished, if the symptoms do not subside with the aid of the sinapism and fomentations, to be used simultaneously with the exhibition of the cathartic, it should be followed by suitable doses of morphine and ipecacuanha to relieve the pain and promote diaphoresis, or our diaphoretic powder may be given. Where the discharges are frequent and the tenesmus great, the starch and laudanum enema, or opium suppository should be employed after each movement of the bowels. I was accustomed in former times to give, very frequently, in these cases, as a cathartic, our antibilious physic with raspberry leaves made into a decoction. This is a very safe, efficient and active cathartic, and, where convenience or other circumstance suggested a substitute for the agents above mentioned, I should now employ it. The raspberry leaves appear to prevent griping, and they act as a mild astringent without in the least irritating the bowels.

You should in no case of this kind overlook the importance of revulsive measures, such as the sinapism and hot fomentations to the bowels. They are means always at hand, and as they are highly corroborant to the radical remedies, should never be omitted. Mucilaginous drinks should be used to satisfy thirst, not only because of their adaptation to that object, but because of the soothing and sheathing effect which they have on the irritated mucous membrane. Their use is highly important. The bark of *Ulmus fulva*, or the root of *Althæa officinalis* is all that need be desired for this purpose.

Where there is derangement of the stomach in the early stage, as indicated by nausea and vomiting, it will be well to premise all other treatment by the full operation of an emetic. This will exert an important influence on the subsequent course of the disease, and is a highly commendable measure; for, if you undertake to remove accumulations from the stomach by cathartics, it may require two or three days to accomplish the object; but a brisk emetic removes them at once, and prepares the way for a more efficient action of your cathartic. The emetic so frequently referred to, (the lobelia and eupatorium) I regard as equally adapted to this case. I have sometimes administered our emetic powder* but if this is employed, it should be in the form of an infusion. I very much dislike these impalpable powders, containing indigestible, woody matter, calculated to adhere to the surface of the mucous membrane, and keep up an irritation long after you desire the action of your medicine to cease. I have no objection to the administration of soluble powders in substance, but as a general rule, where a tincture, infusion, or solution can be used, it is preferable.

In preparing starch for an injection, it should be made somewhat thinner than when used for ordinary purposes. Instead of starch, any other mucilaginous fluid, as the infusion of slippery elm, or of marsh mallows may be used. The quantity used at a time should not exceed a gill, with a drachm of laudanum, and whether the injection is employed or the opium suppository, it should in either case be repeated as frequently as it passes away; for by neglecting this, the disease will get a start of you which it may be difficult to regain.

If you are *called at a late period* to a case of sporadic and uncomplicated dysentery, and find the bowels in a soluble condition, as is usually the case, or after the action of your first course of medicine you have brought about this condition, but find that the disease does not yield, you must hold a gentle

* R Ipecac, }
 Lobel. pulv. }
 Capsicum An. pulv. gr. vj.
 Water, Oj.

F. decoct. and strain.

though firm and steady hand. Do not thunder away now with your heroic measures as if resolved to kill or cure at once. You may possibly cure some, but you will, by such a course, send many more to the grave. The cause being removed, if the inflammation does not subside, it is because it has reached a point at which it has become an independent or self-sustaining disorder. Under such circumstances you should employ no active purgatives, but rely upon mild and gentle means. The question then arises, what are our remedies in such cases? On this point there is great diversity of opinion. I have seen excellent effect from small doses of our neutralizing physic, repeated sufficiently often to keep up a gentle action of the bowels; but I think I have seen still better results from the use of pure salad oil for the same purpose. This may be given in doses of from one to four teaspoonfuls once in two hours, and may be relied upon as the only aperient necessary. With either of these aperients it will be necessary to administer some soothing adjuvant, for which purpose our diaphoretic powder is a very good article. It determines to the skin, and while it does not irritate the bowels, it tends to restrain the desire for frequent evacuations which so much distresses the patient, and aggravates the disease. It may be given in 10 grain doses, as often as necessary to maintain its anodyne influence. In connection or in alternation with this, an injection may be given two or three times a day, prepared as heretofore directed, or the opium suppository may be used instead. As a change in the character of the injection I have used with advantage, a mild solution of tannin combined with tincture of opium. Or instead of the tannin, an infusion of raspberry leaves, or of oak bark may be employed, especially if there is diarrhœa. These means may be repeated as circumstances require.

Where there is reason to believe the dysentery is caused by *worms*, as is frequently the case in children, your course is plain; all you have to do is to remove the worms. Some simple palliative means may be used to relieve the urgency of the symptoms, but the main reliance should be on adequate vermifuge treatment.

But the most important form of this disease is that in which it

prevails as an epidemic, and especially where associated with malarial influence, as it almost invariably is in this country. Where this is the case, I need scarcely say what my views of treatment are. I have so often insisted on the importance of removing malarial disease in the start, wherever it is found to be present, either as a primary or secondary affection, that you cannot be in doubt as to the course I should pursue under such circumstances.

If called to a case of dysentery occurring under malarial influence, I should seek of course to learn all the history and peculiarities of the attack as in other cases, and should adapt my prescriptions to those peculiarities; but for the arrest of the malarial fever, which is usually the paramount disorder in such cases, I should rely upon nothing but the quinine and iron. If the best time for the administration of these remedies was not present, I should premise their exhibition by such palliative measures as have been recommended in other cases. I would move the bowels if they were torpid, and stimulate the liver if that gland was inactive, by such aperient or cholagogue medicines as the neutralizing physic in the one case, or the podophyllin and leptandrin in the other. If the stomach were evidently deranged by accumulations I would empty it by an emetic as in cases before mentioned. The action of such agents where their use was indicated would, without doubt, render the system more susceptible to the influence of the antiperiodic remedies, but harm produced by a single exacerbation of fever would far overbalance all their beneficial effects. If therefore a remission were present, or the time when one might have been expected had come, whether the febrile symptoms had subsided or not, I should first of all give efficient doses of quinine and iron.

The administration of the antiperiodic medicine is not however incompatible with the application of the sinapism and fomentations, with the use of diaphoretic medicines, such as morphine and ipecacuanha, diaphoretic powder, or sudorific tincture, nor with the employment of mucilaginous injections with laudanum or the opium pill as a suppository. Indeed, these various measures can never be out of place in dysentery in any form, and although merely palliative in cases of the kind under consideration, that is, inca-

pable of affecting a cure so long as the malarial poison is acting upon the nervous system ; yet they are so highly corroborant, and tend so much to mitigate the sufferings of the patient, that they should in no case be omitted.

This disease prevailed very greatly within the field of my practice last season, and all the cases which fell under my observation were impressed with the periodic feature ; some indeed were distinctly intermittent in their character. I treated them in the manner just described ; came right in with my antiperiodic medicine, unless the patient was in the height of an exacerbation when first seen, and in almost all cases thus treated, I was saved the necessity of giving either an emetic or cathartic. I do not say this will always be the case, but I have generally found the bowels to resume their proper motions, or at least become more tractable under mild aperients, after the system was brought under the influence of the antiperiodic remedies. Such, I say, was my course in the epidemic of last year, and while the disease was carrying off persons in every direction, I have the satisfaction of knowing that not a patient to whom I was called died.

I do not entertain the least doubt of the correctness of my views of this disease, namely, that the fever is the principal difficulty, and the dysentery a mere *epidemic* feature of it. You will, indeed, find a concession to this effect, in some of the more recent authorities. Dr. Wood says that "dysentery is a mere attendant on the fever in this case," and that the colitis, in some severe and obstinate cases, ceases "almost immediately when the prop which supports it is removed." Still he does not recommend the use of quinine until "an intermission, or a regular remission, with only so much general action in the interval as may be supposed to be sustained by the local disease" has been obtained, and then only "after a thorough preliminary evacuation of the bowels, and the loss of blood, if that be deemed necessary." The Doctor certainly does not conform his treatment to his own philosophy. No one denies that the cause should be removed. If accumulations are the cause, the bowels should of course be evacuated ; if an excess of blood in the system be the cause, a part of it should be lost ; (though I would suggest that there are ample openings provided for this purpose by nature,

rendering the lancet unnecessary,) but if malarial fever be the "prop" why not "knock out that prop," to use a common phrase, by the only appropriate or efficient means, an antiperiodic prescription. If it is replied that the quinine is more efficient after a cathartic, I reply, it is equally true that a cathartic will operate much better after the administration of the quinine; and I see no reason why the radical measure should be delayed at the expense of valuable time, to await the action of a mere adjuvant. On the contrary, having for a dozen years treated this disease upon the very doctrine now beginning to be recognized, I can assure you that what reason and analogy in this case so strongly suggest, is, by experience, demonstrated to be sound philosophy.

But, gentlemen, a case will occasionally occur, which will not be so easily managed. There may be some peculiarity in the constitution of the patient which you have not discovered, which renders the disease uncommonly obstinate; or you may have been called after the disease has been allowed to progress too far; or after it has received such an impulse by improper treatment that ordinary measures prove incompetent to arrest it; or your failure may be owing to some influence for which you may not be able to account. In any such case you will have your skill and judgment put to a severe test.

Where the inflammation was very extensive, I have derived much advantage from the application of a few cups along the track of the colon before and behind. In connection with this measure I have given a pill of nitrate of silver $\frac{1}{8}$ gr. finely pulverized and mixed with two grs. pulverized gum arabic moistened with water, and repeated it every three hours; while the bowels were kept restrained by a pill of opium 4 grs., surrounding a solid piece of nitrate of silver $\frac{1}{4}$ gr., introduced into the rectum as far as practicable with the finger. The opium pill should be repeated whenever it comes away, in order to keep the system freely under its influence, and thus subdue more permanently the spasmodic action of the bowels. The nitrate of silver pills should be continued for twenty-four or thirty-six hours and then suspended, when they will usually have relieved the capillary congestion so commonly present both in the skin and mucous membrane of the bowels, and will be followed by free bilious evacuations.

During the use of these pills, it should be observed, most other medicines should be suspended, as they have a wide range of incompatibles. Little or no salt, even, should be allowed while they are being given, as it would decompose the nitrate of silver.

I have seen but one or two cases where the injections or the pill would not, after some perseverance, be retained and restrain the discharges, and in these cases I gave by the mouth a pill of two grs. of opium surrounding one of the pills composed of nitrate of silver and gum arabic. This seemed to have the desired effect, and by repeating the opium sufficiently often to keep the system under its influence, say once in 4 to 6 hours, I was able to relieve the spasmodic action of the bowels.

If the dysenteric discharges continue, notwithstanding these pills, with no faecal or bilious matter, a pill should be given composed of podophyllin one-fourth of a grain, leptandrin one-half a grain, and extract of taraxacum a sufficient quantity, and repeated once in twelve hours, until the dejections become bilious.

I need scarcely say that the *diet* throughout the treatment must be very simple and light. Attention to this is the more important as there is sometimes an appetite, which if indulged, would soon convert a moderate case into one of great severity.

The convalescence must be managed with great prudence. The patient should keep within doors much longer, generally, than he thinks necessary, and when he begins to take exercise he should do so very gradually, being careful not to fatigue himself, nor be exposed to cold or dampness, nor sudden atmospheric changes. He should continue to be restricted to plain, digestible, unstimulating diet; and his bowels should be kept in a soluble condition by the occasional use, if necessary, of a pill of podophyllin, leptandrin and extract of taraxacum.

LECTURE XXVIII.

CHRONIC DYSENTERY, ETC.

Symptoms—Constitutional Derangement—Post Mortem—Cause—Treatment—Mild Cases—Ulceration—Diarrhœa—Varying Remedies—Prolapsus Ani—Diet. PERITONITIS: INFLAMMATION OF THE PERITONEUM—*Preliminary Remarks—Varieties—Acute—Symptoms—Puerperal—Tympa-nitis—Periodicity—Post Mortem—Cause—Diagnosis—Prognosis—Treatment—Chronic Form—General Remarks—Symptoms—Treatment—Clinical Case of low Fever.*

CHRONIC DYSENTERY is not a very rare disease. Either associated with some other affection or in its uncomplicated character, it is perhaps as frequently encountered by the practitioner as any other disorder. It is generally connected with chronic enteritis, as the irritating evacuations incident to disease of the small intestines can scarcely fail to propagate such disease downward into the large intestines; and even where the original disease is dysentery, the inflammatory condition, when protracted into the chronic form, is very often extended, not only throughout the colon, but to the small intestines also. It is therefore not at all uncommon to have a union of the symptoms of chronic enteritis, with those of chronic dysentery.

I shall give you merely a general outline of the *symptoms*, without dwelling upon them at great length. The skin is always more or less inactive in this affection, being generally very dry, parched and husky, owing to inactivity of the capillary circulation. The bowels are usually loose and irritable, unless the lesion is confined to the lower portion, in which case they are generally

costive. If the small intestines are involved in the chronic inflammation there will be a constant tendency to diarrhœa. The discharges may not be more frequent, but their character will be very different from that of the purely dysenteric discharges, where the lower bowels only are diseased. The frequency in either case is exceedingly variable, depending, no doubt, on the intensity of the diseased action, the constitutional condition of the patient and his habits in regard to diet, exercise, &c. In some there will be but two or three motions of the bowels in twenty-four hours, in others they will number as many as twenty or thirty and sometimes more.

In simple chronic dysentery the discharges are generally very small, consist chiefly of mucus, or that and blood, and are attended with tenesmus. When feculent matter is discharged, it has, generally, the consistency of ordinary alvine evacuations, but will either be surrounded by a coat of mucus and perhaps streaked with blood, or else the morbid excretions will be found involved between layers of fœcal matter. If the liver is torpid there will be constipation and diarrhœa alternately, with clay colored dejections; but the liver may become over excited and the discharges assume an acrid bilious character, and unless corrected, increase the disease, or at least its most distressing symptoms—the tenesmus and tormina. Prolapsus ani is often a result of the spasm of the muscular coat of the rectum, especially in children.

There are generally symptoms of *constitutional derangement*, except in very slight cases, as evinced in the condition of the skin above described, an accelerated pulse, and a slight fur on the tongue. These symptoms, with all others pertaining to the case, will of course be modified by the intensity, extent and complications of the morbid condition.

The *post mortem* appearances exhibit the usual indications of chronic inflammation, redness, thickening, and very often ulceration. In cases of some standing, unmistakable cicatrices may sometimes be observed, while other ulcers may be seen in every stage of progress. The small intestines and stomach in fatal cases, usually become involved also, though sometimes little or no traces of lesion are found in them. The liver is often found to

contain abscesses, or to be otherwise affected according to the nature and extent of its implication in the morbid condition.

Of *the cause* of this affection it is scarcely necessary to speak, since it is usually a consequence of the acute form. It sometimes, as has been stated, results from chronic enteritis; it is not unfrequently a sequel of typhoid or other low fevers, and it may, to a limited extent, be produced by an extension of hemorrhoidal inflammation.

The *duration* of the disease has, of course, no natural limit, except that of life itself, and mild cases seem to have little influence upon the general health. But where the disease extends to any considerable distance in the bowels, its tendency is constantly to undermine the constitutional vigor, until the vital powers finally give way and the patient sinks into a low hectic condition, marked by great emaciation and nervous excitability, and finally yields to his fate. Proper treatment, however, employed before the general health is entirely destroyed, will seldom fail of restoring the patient to a healthy condition.

In the *treatment* of chronic dysentery we cannot be guided by a knowledge of the cause as in the acute disease, for, whatever may have been the original difficulty, that may be supposed, in most cases, to have passed away, and the disease under consideration is a morbid condition of the parts from which, through local or general debility, the system has been unable to relieve itself. Nevertheless, if there is an existing cause operating to perpetuate the disorder, it should certainly be removed.

If the dysentery is confined to the *lower part* of the bowels, with the usual symptom of costiveness in such cases, your main reliance will be in mild aperients. To fulfill this indication, I know of nothing better than our compound neutralizing physic, which will not only increase the activity of the bowels, but correct any morbid secretions. I usually combine with this medicine a gentle tonic, as the wild cherry bark, which operates as a sedative as well as a tonic. This prescription should be repeated often enough to secure one or two alvine evacuations every day. The same medicine will be highly beneficial also where there is diarrhoea, for the rhubarb always leaves behind its aperient action an astringent effect, which, with the cinnamon, will do much to

restrain the bowels when too loose ; but if it should prove insufficient, some efficient astringent may be combined, or alternated with it.

You will frequently find patients who, while laboring under chronic dysentery, will attend to daily business, and, during the excitement of the day, experience very little disturbance ; but when evening arrives and they become quiet, the dysenteric discharges set in and cause more or less trouble and distress during the night. In these cases a dose of our diaphoretic powder, on going to bed at night, will quiet the irritation of the bowels, and moisten the skin, by determining the circulation to the surface. As a substitute for this, a small mucilaginous injection containing laudanum may be employed, where the irritation is merely local ; but, as it has not the diaphoretic influence of the other prescription, it is not so useful where there is a dry skin and some general excitement.

Where the character of the evacuations and the other symptoms palpably evince *ulceration* of the mucous membrane, I have given a pill composed of one-eighth of a grain of nitrate of silver enclosed in gum opium. This will usually pass through the stomach and upper bowels before the opium is dissolved, and then the caustic will act directly upon the ulcerated surface.

In connection with all other measures in the treatment of chronic dysentery, and under all circumstances, particular attention should be given to the condition of the skin. The direct sympathy existing between the cutaneous and mucous surfaces, heretofore so frequently adverted to, renders this indication highly important in the treatment of chronic dysentery. Bathe the surface night and morning with rose water and spirits. This tends to quiet irritability, and if followed by the diaphoretic powder in the evening, will very generally secure a comfortable night's sleep. It also favors the removal from the system of morbid accumulations, by opening the pores of the skin, and promoting the healthy discharge of its functions.

Where there is *obstinate diarrhoea* in connection with the dysenteric symptoms, it will become necessary, as was before stated, to employ more astringent remedies in addition to those already mentioned. Here the marsh rosemary will be found of

great service, though in its absence any of our unirritating astringents may be employed, such as the geranium, blackberry, &c. As a substitute for the diaphoretic powder, I have, under such circumstances, sometimes given equal parts of comp. tinc. of catechu and paregoric in moderate doses, with good effect. But where there is constipation, positive astringents should not be employed, for they will tend to increase it without relieving the dysenteric symptoms.

Chronic dysentery will not yield at once to any mode of treatment, but requires patience and perseverance to effect a cure. You will find it often necessary after having *employed certain remedies for a while to substitute others*, not only because you desire to satisfy the anxiety of your patient, but because medicines when employed for some time actually cease to have their ordinary influence, owing to the system's becoming insensible to their influence, through habit. In addition to the articles already mentioned, I will name the decoction of raspberry leaves, which may be given in doses of a wine-glass full twice a day. It is an excellent astringent, though mild and soothing to the mucous membrane. Where astringents by the mouth, are contraindicated by constipation, they may be used in the form of a mild infusion as enemata. A weak decoction of oak bark, for instance, administered in this way, may be of much advantage. Where there is extensive gastro-intestinal irritation, the infusion of staphylea, which I have so frequently recommended for that condition, will prove a valuable tonic, while it seems really to allay irritation.

I stated, while speaking of symptoms, that *prolapsus ani* frequently occurs in chronic dysentery, especially with children. I have frequently met with this occurrence, and as it is one which always gives much distress to the little patient and alarm to the parents, and is withal sometimes difficult to relieve, it may occasion some trouble and embarrassment to the inexperienced practitioner. I will therefore briefly state the method which I have always pursued with success. The phenomenon is merely a turning out, or protrusion of the mucous membrane of the rectum, which is retained in this position by the spasmodic contraction of the sphincter ani muscles. When it first occurs, it

exhibits a red tumor of greater or less dimensions, and if allowed to remain long, the color will be changed to a dark purple or livid hue. In some cases the gut is easily returned, and the mother or nurse, if properly informed, will have no difficulty in doing it. But sometimes it presents a case of much difficulty, and I have been called to cases where the efforts of friends and physician had failed. The means I have found always successful are very simple. Oil a piece of soft linen, lay it upon the tumor, and press it with the finger into the intestine. If this be done gently but firmly, the sphincter will relax, and the intestine will pass in with the finger and linen. The finger must not be withdrawn at once, but you should wait until you feel the sphincter contract upon your finger and then carefully withdraw it, and remove the linen. To prevent a recurrence, a compress, consisting of several folds of linen oiled and applied to the anus, may be retained there by means of a T bandage. The bowels should be kept in a soluble condition, while soothing astringent or anodyne injections should be employed to overcome the local irritation and tenesmus. Where the prolapsus depends upon debility and relaxation of the bowels, daily bathing the abdomen and loins with a decoction of oak bark, and letting the patient take a "sitz" bath of the same, will have a tendency to overcome the difficulty.

The *diet* is of great importance in the management of chronic dysentery; and on this subject I refer you to what was said under the head of indigestion. The directions there given are perfectly adapted to the present case. A mild, unstimulating diet, easily digested, and in moderate quantities, should alone be allowed.

I omitted to mention a remedy while speaking of diarrhœa, which, I am confident from the trials I have made with it, is of great value in that affection. I have found it equally useful in diarrhœa connected with chronic dysentery, and am anxious to see its virtues thoroughly tested. It is a plant called in botany *Rochelia Virginiana*, and is a species of the *stick tight* or *beg-gars' lice*. The root is spindle-shaped, but thickly set with small rootlets, it has a peculiar but very bitter taste, and when chewed, is nearly all converted into mucilage in the mouth. I

have seen cases of diarrhoea depending on relaxation, and others connected with chronic dysentery, relieved at once by the patient chewing and swallowing a piece of this root not an inch long, and the daily use of it appeared to overcome obstinate diarrhoea. Still I have not sufficiently tested the agent to make it a leading article in my treatment. To enable you to recognize it I will give you a description of the plant. The root as above stated, is spindle-shaped, with many small fibres, and has a darkish color. It is biennial, and is only fit for use the first year, being woody the second. Lower leaves, broad ovate, sub cordate, acuminate, scabrous and dark green above, pilose and lighter colored below. Racemes divaricate, axillary; fruit covered with hooked bristles; upper leaves, lance oblong. The plant does not send up a stem the first year, but forms a spreading tuft of broad, dark green leaves. In Eaton's North American Botany this plant is called an annual, but this is a mistake.

PERITONITIS—INFLAMMATION OF THE PERITONEUM.

Having occupied as much time on inflammation of the mucous surface of the bowels as can be allotted to that part of our subject, we will, if you please, pass to the consideration of peritonitis, or inflammation of the serous membrane of the abdominal cavity. This membrane, as you are aware, lines the parietes of the abdomen and affords a covering, more or less complete, to all the abdominal and pelvic viscera. It is therefore in very intimate relation with the intestinal canal, and with several other organs in this region, into which we have yet to pursue that form of disease which is now occupying our attention.

As a primary or independent affection peritonitis is rarely met with, but as resulting from wounds or other local injuries, and as associated with puerperal fever, and with malarial and protracted cases of typhoid fever, this form of phlegmasia may, upon the whole, be regarded as somewhat frequent in occurrence.

Peritonitis is susceptible of the usual distinctions—*acute* and *chronic*—but the line of demarcation between the two forms is so indistinct, that but little advantage can be anticipated from their separate consideration. Our attention will first be directed to the acute form, after which a few words will suffice for all I have

to say in regard to the other. Some authors have made other divisions in treating of peritonitis, having reference to the precise locality of the inflammation. In this way Cullen made three species, namely, *peritonitis propria*, *peritonitis omentalis* and *peritonitis mesenterica*. Others distinguish several varieties, depending upon the location of the disease or the particular viscus whose serous covering is the seat of inflammation. But such distinctions are of no practical importance and I shall not observe them. I shall, however, have occasion to describe several modifications or varieties of the disease as produced by different causes or occurring under peculiar circumstances. The symptoms of peritonitis proper do not, however, materially vary, except perhaps in severity, whatever may be the origin of the inflammation or its complications, though they may of course be associated with and modified by the symptoms of attendant affections.

ACUTE PERITONITIS.

This disease is most frequently encountered in practice, in that variety denominated *puerperal peritonitis*. The condition of all the organs at the termination of the period of gestation, and the debility resulting from the relaxation of the tissues, and the collapse of the parts, which must follow parturition, seem strongly to predispose them to inflammatory action; and the serous covering of the body of the womb cannot but partake of the common tendency. Here we have, I conceive, a striking illustration of the principles which I have attempted to impress on your minds, as involved in the phenomena of inflammation. We have here a combination in many cases, of the two proximate causes of inflammation;—a relaxation of the vessels and an impoverished state of the blood.

The general *symptoms* of peritonitis will now be briefly stated. It generally comes on suddenly without much premonition. The first symptom is often a very severe, sharp pain in the abdomen, usually in the hypogastric region. Or a slight chill may precede the pain. When the patient is in childbed some slight indiscretion may suffice to bring on an attack. She may, for instance, after lying for a while under too much covering, become uncomfortably warm, when a sudden removal of the bed clothes exposes her to the cool atmosphere; a slight chill is the conse-

quence, and this is either accompanied or soon succeeded by the pain, evincing peritoneal inflammation. This is not always the result of exposure under such circumstances, but where there is a predisposition to the disease such exposure may be sufficient to develop it.

There is a form of *puerperal peritonitis* supposed by most authors to be highly contagious ; and it becomes a matter of great consequence to know whether it is really so or not, as connected with the lives of patients and the reputation of the practitioner. If it could be clearly shown that the disease is contagious, and liable to be conveyed from patient to patient by the medical attendant, a plain course of duty would be presented to him as a conscientious man, namely, to avoid for a time all obstetrical practice, after having attended a case of this description. I have very great doubt, however, as to the contagiousness of the disease. I have never seen anything sufficiently conclusive to convince me that there is any contagion connected with it.

Where the case commences with a *chill*, this is immediately succeeded by decided febrile reaction, attended by the symptoms of local inflammatory disease. The skin gradually becomes hot, and the pulse frequent, small, hard and wiry. The frequency of the pulse is peculiarly diagnostic, for in ordinary inflammatory diseases the pulsations seldom exceed 100 per minute, while in peritonitis they range from 110 to 150. The urinary secretion is diminished in quantity and of a higher color. The tongue is covered with a slight coat of a white or yellowish hue. There is always tenderness of the abdomen, which may, however, be more manifest in some particular place, corresponding with the locality of the inflammation. If the disease is located on the stomach, the tenderness will be most distinct in the epigastrium, if on the liver, in the right hypochondrium, and so of other organs. But wherever the inflammatory action may be first developed, there is a tendency to its diffusion throughout the whole extent of the membrane. The whole abdomen thus becomes exceedingly tender to the touch, and even the slightest motion is the cause of pain, so that patients are usually inclined to lie perfectly still, and generally on the back, with the lower limbs drawn up, to prevent tension of the abdominal muscles. The effort of coughing,

sneezing, vomiting or defecation, in short, any action requiring contraction of the abdominal muscles, occasions suffering. To avoid pain, patients will frequently postpone as long as possible the evacuation of both the bowels and bladder. Even the motions necessary to natural respiration are sometimes the cause of so much pain that the patient breathes with the thoracic muscles alone, even suspending as far as possible the contraction of the diaphragm. I have never recognized the hurried breathing described by some writers, but the inspirations are short, and the respiration has a kind of panting character. Sometimes a slight sound will mark every expiration. This is often the case also, with children, where there is inflammation of the bowels, and the difficulty of breathing is sometimes referred to disease of the lungs; but it is very easy to distinguish between this panting, grunting respiration and the hurried breathing characteristic of pulmonary inflammation.

The abdomen is usually *tumid* or *swollen* at an early period of the disease, and sometimes decidedly tympanitic, though tympanitis proper is more commonly a symptom of the advanced stage. The tension of the abdominal parietes which attends the commencement of peritonitis, may usually be somewhat relieved by an evacuation of the bowels, but the tumefaction and tympanitis which subsequently exist, will persist, notwithstanding there may be constant diarrhoea. There are, however, occasional cases where a distended condition of the abdomen is not present; the abdominal muscles being contracted down so as to give the abdomen a flat or even concave appearance.

When the inflammatory action has its principal seat in any *particular locality*, the fact may generally be ascertained and the extent of active disease determined by the pain felt under pressure with the hand; especially if the patient is of a spare habit. If the epiploon is the special seat, the tenderness will extend, it is true, over the fore part of the abdomen to some extent; but it may be known by the fullness in the middle of the abdomen, and, when there is effusion into the folds of the omentum, by the inequalities resulting from the filling of circumscribed sacs, which will be felt as distinct tumors of various sizes on the surface. When the disease results from an impacted condition of the colon,

as it sometimes does, a circumscribed tumor may be felt in the location of the difficulty. This is probably most commonly the case at the head of the colon, in which case the pain and swelling both will commence in the right iliac region, and be most manifest there, perhaps, throughout the course of the disease. But it may originate from this cause, at any point in the course of the large intestines. I remember a case, in which there was a generally diffused inflammation of the peritoneum; but from the history of the case, as well as present symptoms, I concluded the disease originated and still had its principal seat in or about the left hypochondrium, and judging that it resulted from obstruction in the colon, I evacuated the bowels thoroughly. The result was an immediate subsidence of the local symptoms, and the speedy disappearance of those of a general character. Nausea and vomiting are generally regarded as denoting the involvement of the gastric portion of the peritoneum, either by its originating there or having reached that part by extension. Where there is congestion of the liver, however, these symptoms may occur from that cause, even though the serous surface of the stomach is unaffected. It will therefore be necessary to ascertain whether there are diagnostic symptoms of hepatic engorgement, not only with a view to the determination of this point, but also to the indications of general treatment. If the vomiting or nausea depend on biliary derangement there will be a loaded tongue, but when they depend on gastric irritation, the tongue will be red and irritated as heretofore described; but where there is no disturbance of the stomach the tongue will present a thin white coat and be in a moist condition. Irritation of the stomach is often a troublesome attendant of peritonitis. It interferes with the operation of the medicines necessary in treatment, and I always look upon it as one of the most unfavorable circumstances likely to be connected with peritoneal inflammation.

Constipation is a uniform symptom of peritonitis in the earlier part of its course, whether it is the parietal, the visceral or epiploic portion of the peritoneum that is specially involved. But in protracted cases the mucous surface of the bowels becomes involved, by sympathy, and then diarrhoea generally appears. This, too, may be regarded as a very formidable symptom.

Periodicity is a symptom which often attaches itself to this disease. I have found a large majority of the cases of peritonitis, to which I have been called, to be more or less modified by malarial influence. In calling attention to this fact, in relation to this disease as well as to others, my object has been, and still is, to impress your minds with facts gleaned from long experience. While speaking of the general principles in relation to malaria, and its effects on the human constitution, I announced its great tendency to impress its influence upon nearly every disease to which man is liable, and in adverting to this point in relation to individual diseases, I am merely reiterating and illustrating that tendency. Should the frequent reference which I make to this interesting fact, lead any to charge me with riding it as a "hobby," be it so; I shall nevertheless endeavor to perform what I conceive to be my duty. The symptoms of the malarial complication you will not be at a loss to recognize, and its treatment will not differ from that required for remittent or intermittent fever.

The *post mortem* phenomena are such as might with reason be expected. Effusion is often found either generally diffused through the sac, in the folds of the epiploon, and in the folds of the mesentery, or connected with the convolutions of the small intestines. Adhesions between portions of the peritoneum are often found, and sometimes sacs or small isolated pouches of serous membrane are formed in this way, which, being filled with the liquid effused, explain the nature of tumors that have been observed during life. The effusion is sometimes yellowish and watery in appearance; and sometimes curdled and milky. Where the disease has been very rapid, so that death has occurred at an early period, a considerable degree of redness will designate the parts immediately involved, and this will constitute the only pathological change observable; but where the case has been protracted, collections of coagulable lymph, sometimes forming partially organized membranous tissue, are found between opposite surfaces of portions of the peritoneum. This substance has, indeed, been found, sometimes, actually to contain nerves and blood vessels in its structure. This produces adhesions of greater or less extent, and forms, occasionally, the distinct sacs spoken

of a few moments ago. Where the disease has resulted from perforation of a viscus, the fact will be indicated by the character of the contents of the peritoneal cavities. In that case also gas of a more or less foetid character will escape when the first incision is made through the abdominal wall.

In regard to the *cause* of this disease, I need only recapitulate what has been said already. The most common cause is exposure to sudden changes of temperature, especially where there exists a predisposition, from constitutional peculiarity or debility and an impoverished state of the blood, or from injury to the membrane resulting from parturition, &c. Malarial fever also may develop this form of local disease where there exists a predisposition to it. It sometimes arises from disease within the intestinal tube, as when inflammation of the mucous membrane of the stomach or bowels extends to the other coats; when an ulcer perforates the intestinal wall; or when there is obstinate obstruction in the bowels from hardened fæces, from strangulation or from intussusception. Inflammation of the body of the uterus is sometimes extended to its serous covering; so also of the ovaries; of the mucous and muscular coats of the bladder; of the substance of the liver, or spleen, &c. Peritonitis is sometimes the result of local injuries, such as wounds and bruises; and of surgical operations for strangulated hernia, tapping for ascites, &c.

The *diagnosis* in this disease is not generally attended with much difficulty, unless by reason of complications. The only diseases with which it is likely to be confounded are colic, gastritis and enteritis. From colic it may usually be distinguished by the absence of the peculiar paroxysmal pains of colic; by the low grade of continuous pain experienced in peritonitis; by the greater frequency of the pulse in this disease than in colic; by the extreme tenderness of the abdomen in peritonitis; by the peculiar distressed and anxious expression of the countenance, and by the indisposition to move, where there is peritoneal inflammation; while in colic there is constant restlessness and changing of position. It may be distinguished from inflammation of the *mucous* surface of the alimentary canal, by the tendency to constipation; by the absence of mucus, serum, and blood in the discharges; by the sharper pain, the greater tenderness

under pressure, the fullness and tension of the bowels; and by the low grade of the constitutional symptoms, as observed in the frequent, feeble pulse and nervous depression. From rheumatic and neuralgic affections, the above diagnostic symptoms will be all-sufficient to enable any intelligent physician to distinguish this disease.

The *prognosis* is not generally unfavorable under judicious management. Although the disease is generally rapid in its course, and when very severe tends to a speedy fatal termination, it is, nevertheless, as amenable to prompt and appropriate remedies, as any other form of inflammation, and hence it does not often prove fatal in the hands of a skillful physician. When there is a tendency to a fatal result, the pain mostly subsides, the pulse becomes more rapid and feeble, and the skin cool; slight delirium occurs which results in a comatose condition; hickup perhaps ensues, which is a most formidable symptom, and is soon followed by death. Where the tendency is favorable, an opposite train of phenomena will of course be developed. The pulse becomes less frequent and fuller; the skin acquires more natural warmth, a free and healthy perspiration appears on the whole surface, the flow of urine increases, and deposits a sediment common to the declining stage of inflammatory diseases. This is a highly favorable prognostic symptom. The deposit will usually be either phosphate of lime or uric acid.

In speaking of the *treatment* of peritonitis, I shall not dwell on the course recommended in the authorities. Among them there is perhaps as much concurrence in the treatment of this as of any other disease. Bleeding appears to be looked to as the only hopeful measure, and from the unanimity with which it is recommended, I should be inclined to regard it with more consideration than I do, were it not for two or three facts. The first fact is this, that under the blood-letting treatment the disease has always been attended with a melancholy fatality; a second fact is that under a different course, such as I shall soon present, the disease is seldom fatal, and a third fact is the notorious change that is taking place in the practice of even the old school physicians in regard to this mode of treatment. I might here also refer to the general principles, established in regard to the

loss of blood, as favoring rather than relieving inflammatory action; and remark that however plausible the opinions of the advocates of blood-letting may be rendered by the mode of their presentation, and however respectable the names of those advocates may be, we should certainly suspect some gross error, when we find a demonstrated fact in natural philosophy standing in stern opposition to human opinions. I feel confident that when you shall have thoroughly examined this subject, you will find that peritoneal inflammation does not furnish an exception to the general rule to which I refer.

The cause of the disease is, of course, a subject of much importance in this as in other forms of inflammation. Where there are accumulations in the stomach or bowels or both, they may be the cause, and their removal may promptly relieve the case; but if these are not the cause they should be removed, as they will tend to aggravate the symptoms and prevent a cure. A prompt emetic, if indicated by the condition of the stomach, will be of much use, besides the local relief afforded by it, in equalizing the circulation, and arousing the secretions. And here the infusion of lobelia and boneset will prove to be admirably adapted to the indications. For the evacuation of the bowels you will need a thorough cathartic. For this purpose I am in the habit of employing our antibilious physic, to which I add a small quantity of podophyllin. Where there is an impacted condition of the colon, the action of the cathartic may be very advantageously promoted by a laxative enema. The action of a cathartic under such circumstances is highly beneficial, as it not only unloads the bowels and removes the cause where the disease has this origin, but by its stimulating effect on the mucous surface, it acts as a revulsive measure, relieving at once, in many cases, the inflammation of the serous membrane. The medicine I have recommended for this purpose will also act upon the liver, and relieve or prevent hepatic torpor and consequent portal congestion. The measures I have recommended are manifestly, as you will perceive, adapted to all cases where there are accumulations in the alimentary canal.

If the disease results from cold, a free and copious perspiration should be induced. If indicated, the measures just advised will tend to promote this object, while other means may be

employed at the same time. But where it is not deemed best to give an emetic or cathartic, the object may frequently be effected by simple diaphoretic teas. If however these are not sufficient, the sudorific tincture, or the diaphoretic powder may be administered.

If the disease does not yield under such treatment, hot fomentations should be applied to the abdomen. A hop poultice, or a bag of hops wrung out of hot water will answer an excellent purpose. But should the case still prove obstinate, although at first it may not have been thought necessary to employ a cathartic, it will now be necessary to resort to that measure, for if not as an evacuant, it is required as a revulsive and depletive agent. The cathartic medicine above recommended will prove all-sufficient, and will be more efficient, as a means of depletion in removing from the blood those matters and elements which interfere with healthy secretion and free capillary circulation, than blood-letting, even though carried to the utmost limit of heroic practice. In addition, however, to these measures, others may be employed, if necessary. Cups may be applied on that part of the abdomen where the most pain and tenderness is felt. They may be used dry, or if local depletion is deemed desirable, the scarificator may be employed. You cannot in this way abstract enough blood to injure the quality of the circulating mass, yet you may exert a prompt and efficient derivative influence upon the disease. Upon the removal of the cups the surface should be immediately covered with the hot fomentation or with a bread and milk cataplasm. This last mentioned article, applied to the whole abdominal surface, is of very great advantage, as it keeps up a constant moisture and relaxes the abdominal muscles; and in this way affords as much comfort to the patient as any thing that can be done.

If the inflammation still persists, it will be necessary to repeat your cathartic treatment the second, and perhaps the third day; though the agent employed may be more mild after the bowels have been thoroughly evacuated. I have found a combination of castor oil and spirits of turpentine a good remedy. This combination stimulates the vessels involved to increased action, and produces sufficiently copious evacuations. If the symptoms

demand it, the emetic may also be repeated; but by all means there should be kept up a constant perspiration. This will tend to reduce the inflammatory action, and with it you will find the pulse gradually to decline in frequency.

Where the disease is distinctly marked with periodicity, I hesitate not in the least to say, that sulphate of quinia and prussiate of iron should be given, as soon as that fact is ascertained. The only rules to govern the treatment of the case, in reference to this feature, are those so fully stated while treating of malarial fever. *Let the malarial fever be arrested as the first and most important indication.* If you fail to prevent an exacerbation by your first prescription, it may be well to administer a cathartic, and then in the next remission continue the antiperiodic medicine; and in this way alternate your treatment until the paroxysms are arrested. I here again repeat, that you need have no apprehension of injury to your patient from the antiperiodic remedies, though there may be a very high grade of inflammation; but very often the inflammation will seem to be quenched by the medicines, like fire overwhelmed with water. A perspiration, in such cases, follows the administration of the medicines, and neither malarial nor peritoneal fever reappears. This, however, will only be the case where the inflammation is dependent upon the malarial fever. Where the fever is merely secondary to the inflammation in the beginning, or where the inflammation has progressed so far as to become a self-sustaining morbid action, the symptoms will not so easily subside. Still, they will be decidedly mitigated by an arrest of the periodic fever, and a cure very much promoted. An obstacle has been removed which must have utterly subverted all remedial measures so long as it remained. You will now be prepared to proceed with such further treatment as the case may demand, on the general principles already laid down.

I will add that some of our practitioners, and the late Professor Morrow among the rest, have spoken in high praise of the spirit sweat in this disease, and I see no reason to doubt its efficiency. I have not found occasion for its use in this affection and cannot therefore speak from experience. I have however employed it with excellent effect in other cases, where indications similar to those presented here were to be fulfilled.

Should the case run on until the strength of the patient is very much reduced, it will become necessary to sustain him with tonics and perhaps stimulants. Carbonate of ammonia, staphylea tea, wine whey, and other agents of these classes may be employed, in connection with rubefacients and other revulsive measures externally applied. An irritating plaster applied over the entire abdomen will be of great benefit where the case is thus tedious.

It is scarcely necessary to say that the diet during the whole course of acute peritonitis must be light. It should be taken only in the liquid form, and be such as to furnish little or no excrementitious matter. After the inflammation is subdued, the diet may be gradually increased in quantity, and in its stimulating qualities. Convalescence must be managed with great care ; all exposure must be avoided, and everything which, by impairing the equilibrium of the circulation, would tend to reproduce the inflammation, must be guarded against.

CHRONIC PERITONITIS.

The attack of peritonitis is sometimes so insidious as scarcely to deserve the title of an acute disease. Still, the nature of the morbid action only differs in rapidity or intensity from the ordinary acute form, and the symptoms so far as observable are the same. Even the anatomical characters, where death follows such an obscure case, are entirely similar to those observed where a protracted case of acute peritonitis finally proves fatal. Occasionally, it is true, a tuberculous condition of the peritoneum is discovered, but there are no symptoms during life, pointing with certainty to such a condition. Where there is a scrofulous diathesis, a hereditary tendency to tuberculous disease, and where a low grade of peritoneal inflammation is accompanied by glandular swellings, and especially if there are tubercles in the lungs, it will be reasonable to suspect that the state of the system is the source of the local disease in question.

Generally, however, *chronic peritonitis* is merely a continuation of the acute form, which, having partially worn itself out, or having been modified by treatment, is reduced to a low grade of morbid action, having no definite tendency to terminate either in health or dissolution. In this state, the affection may continue for

an indefinite period, presenting all the time, more or less clearly, the ordinary symptoms of peritonitis. There will be tenderness and even sharp pain on pressure, in the abdomen generally, or confined principally to a particular locality. There will be diarrhœa, alternated perhaps with constipation, according to the condition of the liver and mucous surface of the alimentary tube. There will sometimes be tumefaction of the abdomen generally or circumscribed swellings, as described in the latter stages of the acute form, resulting from effusion, which may be so extensive as to constitute ascites. If the disease is not relieved by appropriate treatment, the functions of the abdominal viscera will finally become essentially deranged, the general health undermined, and death will be the inevitable result. *Post mortem* exploration will then develop the same phenomena as those mentioned in connection with the acute form. Adhesions will, perhaps, be more extensive, and the amount of liquor effused will be greater, though occasionally the adhesions will be found to have almost consolidated the abdominal contents, leaving little or no cavity to be occupied by serum.

The *treatment* will not differ materially from that recommended in a protracted case of acute peritonitis. You will find it necessary to persevere with such measures as tend to sustain the energies of the system, to maintain as nearly as practicable a due activity of the skin, and other organs, and a constant equilibrium in the circulation, and to divert irritation from the peritoneum. Hence, gentle aperients, diaphoretics, and tonics internally, with nourishing food given in the liquid form and perfectly digestible, and counter-irritation over the seat of the disease, daily bathing with alkaline or salt water, and stimulating pediluvia, with rest and patient perseverance, constitute the resources upon which you must rely in cases of this kind. As a means of radical treatment, under such circumstances, I believe that more may be effected by the use of Beach's compound irritating plaster over the entire region affected, than by any other measure which may be employed. It should be so applied as to produce and keep up a constant purulent discharge from the whole surface of the abdomen, if the disease be extensive. This measure has the advantage of all other counter-irritating applications in use, in that, while its

impression is so gradual that it is not incompatible with a state of debility, and though it never occasions deep ulcers, it nevertheless produces a decided local impression, and by the copious discharge of pus which it sustains, acts as an alterant upon the general system.

I will close my remarks this morning with a brief *clinical* statement of a case which, although not one of peritonitis, serves to illustrate a principle which, in practice, often connects itself with this and other forms of inflammatory disease. The patient is one of your fellow students. He had been sick four days and had taken several prescriptions of his own and his room-mates', such as cathartics, sudorifics, &c., but found no benefit. The attack was one of a febrile character, and had come on very slowly. When I saw him first, yesterday morning, his pulse was very frequent and resisting, the skin a little moist, but the capillary circulation quite imperfect, the tongue red, dry and glossy, having very little fur upon it. There was looseness of the bowels amounting to diarrhœa, but the discharges, though yellow, did not indicate an undue excitement of the liver. The symptoms raised a suspicion of typhoid fever. There were even appearances of sudamina on his neck, but the patient assured me that these were commonly there in health. But with all these symptoms, there was another, which although very obscure, I did not fail to ascertain. This was a very slight increase of the febrile symptoms every afternoon, a restless night and more quietude towards morning. My *diagnosis* was at once made up. We had a case of malarial fever presenting a typhoid tendency, and which if left to itself would soon develop symptoms of a very grave character.

I directed quinine and iron $\bar{a}\bar{a}$ to be administered in six grain doses every two hours during the forenoon, and four or five similar powders to be given in the same manner the next morning. He took three of the powders before the fever appeared to rise.

I saw him in the evening, and observed a manifest change in his countenance, and the general tone of his system. The fever had assumed a very different type, the pulse was full and bounding, and the energies of the system seemed now fully roused for the first time since the attack.

I called upon him this morning, and found him up, dressed, and preparing to come to college. This was of course forbidden, for I deemed it necessary that he should guard against a paroxysm to-day ; but to-morrow morning, gentlemen, he will be with you.

LECTURE XXIX.

DISEASES OF THE RECTUM.

STRICTURE OF THE RECTUM. *Preliminary Remarks—Two Forms—Spasmodic Stricture—Symptoms and Causes—Treatment—Organic Stricture—Two Varieties—Non-Malignant—Symptoms and Causes—Treatment—Cancerous Formation—Symptoms—Treatment—Radical—Palliative.* HEMORRHOIDS OR PILES. *Frequency and Importance—Definition—Varieties—Constitutional Condition—Local Development—Primitive Type—Positions of Tumors—Bleeding Piles—Wart-like Excrescences—Diagnosis—Causes—Treatment—Constitutional—Local—Removal by Ligatures—Precautionary Measures.*

STRICTURE OF THE RECTUM.

I shall now spend a short time in speaking of STRICTURE OF THE RECTUM, a difficulty in some degree allied to the subject of chronic dysentery, not only in affecting the lower portion of the alimentary canal, but also in following or resulting from chronic inflammation of the rectum.

This affection often calls for the exercise of as much tact and as prompt exhibition of professional skill as almost any other disease. Though the case may not present very alarming symptoms, as looking toward a fatal termination, yet the extreme sufferings of the patient call none the less loudly for your prompt and judicious interposition, to afford relief.

There are two forms in which obstruction in the rectum is found to exist. One of which may be styled *Spasmodic Stricture* as resulting from a spasmodic contraction of one or both of the sphincter muscles, or of some portion of the circular fibres of the

muscular coat of the rectum ; the *organic* or *structural stricture* being dependent on a morbid change in the structure or a carcinomitous growth at some point in the wall of this portion of the bowels.

Spasmodic stricture of the rectum is rarely an original disease, but generally results from irritation connected with hemorrhoids or following dysentery. It may, however, be produced by hardened fæces, long retained in the rectum ; and occasionally it is dependent on irritation of the roots of the spinal nerves, which irritation is reflected to the part where the spasmodic contraction exists, generally the sphincter ani muscles.

In either case, when the constriction is very great, the suffering of the patient often becomes exceedingly severe. This is especially the case during the efforts at defecation, but the pain does not always cease with such efforts, not even when successful. I have seen cases, particularly those where irritable hemorrhoidal tumors existed, in which the pain was so extremely distressing as to extort a groan at nearly every breath, for hours together, from the stoutest hearted patient. In such cases, considerable constitutional disturbance will be likely to grow out of it. The skin becomes hot, the pulse excited, and the tongue coated, while the bowels will generally be quite costive. In mild cases there is apt to be a constant desire to go to stool ; but very severe cases lack this symptom ; the patient often expresses an inability to void any fæces, but feels a constant spasm accompanied with a sensation of "pulling" in an upward direction, as I have heard them express it.

The spasm is so severe and the stricture so complete, often, as to preclude the possibility for the time of introducing the smallest tube of an injecting instrument. A sensation of tremor, alternately with more violent constriction, will be complained of, and often the patient finds relief only by a constant slight pressure with a very soft substance, applied immediately to the lower extremity of the rectum.

Treatment. The indications are—first, to relieve the spasm and thus palliate the severe sufferings of the patient ; and secondly, remove the cause of the difficulty. I have found an ointment prepared from the wild indigo (*Baptisia tinctoria*) as a

base, with the addition of the extract of belladonna sufficient to relax the muscular contraction. This will be greatly aided by a warm poultice of roasted onions applied directly to the rectum, and changed every hour or two. The ointment should be freely applied around the anus and within the rectum, as soon as the sphincter is sufficiently relaxed to admit it. I have also seen very great relief from a warm injection of starch with a tea-spoonful of tincture of opium, where the rectum was not so completely closed as to prevent the introduction of the pipe of a syringe. The bowels, meanwhile, should be kept in a moderately soluble state by mild aperients, with a view to produce the necessary daily evacuations and at the same time render their discharge as easy as possible, by making them soft. As good an agent to accomplish this object as you can employ, perhaps, is the compound taraxacum pill, so frequently recommended in other diseases; and this is particularly indicated where there is any evidence of hepatic torpor, which is seldom absent if the stricture is associated with hemorrhoidal affections. Where there is evidence of an acid condition of the alimentary canal, or of the system generally, the prescription best calculated to correct such condition and at the same time produce an aperient effect on the bowels, is in my estimation, our neutralizing physic, which operates without producing sickness of the stomach, or griping or distress in the bowels.

If spinal irritation is the cause of the difficulty, or is associated with it, a tender point may be found by pressure along the spine, and cups should be applied at that point and followed by the irritating or compound tar plaster. Where there is inflammatory action in the lower portion of the bowels, as evinced by local or general symptoms, and whether such inflammation is the exciting cause or a consequence of the stricture—for it may be either—measures should be employed to reduce it. Cups should be applied as near the rectum as they can be placed—either on the sacrum, or—if the patient is a male—in the perineum, and repeated the next day, if the circumstances of the case seem to demand it. In addition to this, the patient may be directed to take a warm sitz bath once or twice a day. This measure is equally applicable under all circumstances of the disease, and will be found a valuable means of relieving the spasm.

Whatever, then, may have caused the spasmodic stricture, the general principles of treatment are clear. After the urgent symptoms have been relieved, and when the patient is in a condition to bear the remedies required for the removal of the primary difficulty upon which it depends, such measures must be instituted as the nature of the case may indicate. If hemorrhoidal affections have been the source of the difficulty, the remedies which will be recommended for such affections should be used. If the stricture has been produced by dysentery, either in the acute or chronic form, then those measures which I have heretofore fully presented for that disease will be required. In short, your prescriptions will of course be made in accordance with the condition of the system which it is found necessary to correct.

Organic stricture of the rectum. This is a much more formidable difficulty, and is attended with less promise of cure, if indeed it can be successfully treated at all.

This form of disease, presenting a permanent physical obstruction to the passage of the contents of the bowels, must almost of necessity be more gradual in its development and more insidious in its approach. Though the patient may be conscious of more or less uneasiness in the rectum, he will not be likely to recognize the true state of the case until the disease has made considerable progress and more or less obstruction to the passage of the feces has been produced. A uniform attendant upon this obstruction is inactivity of the bowels, and, consequently, a hardened and costive condition of the dejections is almost sure to exist, which renders defecation more painful and difficult than it would otherwise be.

The stricture in this form may, as before intimated, consist in one of two strictural modifications of the wall of the rectum; that is, in a simple non-malignant increase in thickness, or in a malignant or cancerous growth; the one generally amenable to appropriate treatment; the other, especially if located entirely within the bowel, generally unmedicable and consequently fatal.

The *non-malignant* organic stricture may result from chronic dysentery, in which extensive induration has supervened from the inflammation, or it may be produced, partially, by cicatrization following ulceration—a process very often, if not always, attendant on chronic inflammation of the rectum. But probably the

most common cause of this difficulty is the induration which so often follows extensive hemorrhoidal swellings, and which is, no doubt, produced by the obliteration of hemorrhoidal veins under the influence of inflammatory action always attendant on severe attacks of piles. The obstruction may, in fact, often be traced directly to such attacks, being generally developed after the subsidence of hemorrhoidal inflammation.

Diagnosis. This variety of organic stricture will readily be distinguished from the cancerous formation, by the absence of nearly all those symptoms of uneasiness, pain and distress which are always present in the carcinomatous growth, as well as by the difference in physical character which the two affections present; the non-malignant growth being smooth, and elastic, though perhaps lobulated; while the cancerous tumor is rough, unyielding and irregular.

If the difficulty results from induration of hemorrhoidal tumors, the swelling will usually occupy one side of the passage, though it may extend nearly or quite around it. It is often located so near the orifice as to be partly external, and as it may result from more than one original tumor, each of these may remain distinct, and the whole present a smooth, somewhat elastic, though moderately hard mass, more or less completely filling up the passage. Owing to the mode of its development, the swelling will have a knobby or lobulated surface, and in some instances one or more of the prominences may assume a pendulous character, being attached to the main tumor by a somewhat constricted neck.

If the affection is an induration following dysenteric inflammation, there will be little or no external swelling, but the history of the case and the existing impediment to the alvine evacuations will enable you readily to determine the nature of the difficulty. The stricture may, in this case also, be confined to one side of the rectal tube or it may occupy the whole circle; it may be confined to the lower portion; it may be located as high even as the sigmoid flexure of the colon, or it may occupy a considerable portion of the length of the rectum. The obstruction may be a mere thickening and induration of the sub-mucous and cellular membrane, or it may consist of an indurated non-malignant growth and present an undefined tumor, occupying more or less perfectly the

cavity of the bowels. Cases have been reported where the passage was thus entirely obstructed, and the fæces, accumulating above the tumor and producing ulcerative inflammation, had a new channel excavated for them by that process. Such instances, however, are very rare, and even where such a result takes place, it offers but little encouragement to the hopes of the sufferer, for the constitutional disturbance necessarily attendant on such a condition, sooner or later undermines the health and the patient sinks.

The difficulty may be dependent on the presence of one or more polypi. The polypus is a soft tumor attached by a neck to the wall of the rectum, but the growth may be so extensive as to cause obstruction. Polypi may generally be removed from the rectum by means of ligatures.

Treatment. The patient should be admonished in the beginning that a considerable stock of patience will be necessary to sustain him through a course of treatment sufficiently protracted to remove obstructions of the kind we have been describing. I do not, of course, include polypi in this remark. Except for the purpose of correcting any general derangement of the system which may attend the case, little can be effected by medicine administered internally. It will of course be important to keep the bowels in a soluble condition, and when this cannot be accomplished by regulation of the diet, recourse will be necessary to aperients; and in that case, the articles mentioned under the head of spasmodic stricture will be all-sufficient.

Should there be evidence, however, that the local difficulty is connected with a contaminated state of the system, such as the scrofulous habit or the venereal taint, it will be important to administer a suitable alterative and continue it during a considerable period of time. The alterative syrup or the compound syrup of stillingia may be employed in combination with such other agents as the particular condition of the system may indicate, such as iodide of potassa, or one of the preparations of iron.

The main reliance in the treatment of uncomplicated, non-malignant, organic stricture, will be upon the use of a bougie introduced into the rectum, daily or oftener, and allowed to remain an hour or two each time; gradually increasing the size

of the bougie as the dilatation of the passage will permit. This should be accompanied by an application of a small cup with scarification to the coccyx, which should be repeated a number of times, especially if the induration can be discovered upon an external examination. This should be followed by the application of a small caustic issue either in front of or behind the anus, and kept discharging for a long time.

As has been intimated, where the obstruction is produced by a polypus, or by more than one, a ligature may be passed around the base or neck of each and drawn so tightly as to interrupt the circulation, and thus effect its removal. This may be readily accomplished with the aid of an anal speculum and such other instrument as the character of the case will suggest.

The *cancerous formations* in the rectum will be recognized by shooting, lancinating pains, which extend up into the bowels and down the thighs, and sometimes to the neck of the bladder. The tumor when examined by the finger presents usually an uneven knotty surface, and a degree of hardness much greater than any of the formations of which I have been speaking. If it has advanced to a state of ulceration, there is an acrid discharge having a very offensive odor, peculiarly characteristic of cancerous diseases. In this condition the obstruction presents irregular, hardened, and inverted edges, and is more or less covered with fungus growths of a softer and more yielding structure.

These cases come on very slowly and are usually accompanied with appearances of general ill-health,—such as a pale and sallow complexion, some emaciation, and often an edematous condition of the extremities, with a cool and clammy state of the skin.

In some cases the affection is confined to a small portion of the rectum immediately within the verge of the anus; in others, it is located farther up the bowel, and sometimes occupies a considerable area. In other instances still, the cancerous tumor is exterior to the sphincter, but extends up by the side of the bowel in the cellular structure. I have myself treated cases of this kind.

In the early stage of this variety of stricture, constipation usually exists, but after it has become an open cancerous affection, a relaxed condition of the bowels usually comes on, and as the disease

progresses, proves an inconvenient and sometimes very troublesome symptom.

The *treatment* of cancerous stricture of the rectum, in cases of any considerable extent, and especially where the morbid structure extends far up the bowel, will seldom accomplish more than simple palliation. But where the tumor is situated external to the sphincter muscles, and does not extend far up by the side of the rectum, and does not involve the coats of that tube, there is ground for a reasonable hope of an entire cure. Even where, upon proper examination, the morbid growth is found just within the verge of the anus, if it does not involve the muscular coat of the intestine, and the general health of the patient is pretty good, the case should not be regarded as positively incurable.

Where it is deemed proper to make an effort for the extirpation of the cancerous growth, an application of the oak caustic should be applied, as extensively as the patient can bear it, and followed by a slippery elm poultice made soft and applied cold. The poultice should be changed so frequently as to prevent its becoming dry, and when the part which has been deadened separates and comes off, the caustic should be applied again as at first, to be followed also by a poultice. Where a part only of the tumor is covered at one time, it may be attacked in a new place as soon as the patient shall appear able to bear it, without waiting for the first slough to come off. By making these applications as thoroughly and as extensively as practicable, you will be able to destroy the cancerous structure more rapidly than it can grow, and thus finally remove it, if it can be removed at all with safety. Should inflammation to any considerable extent be excited in the surrounding textures, the application of a small cup with scarification will generally be sufficient to relieve it.

If this application does not act as favorably as you may desire, the *sulphate of zinc* mixed with *acetate of lead* may be substituted. The action of the sulphate of zinc usually produces more pain than the caustic, but is not likely to excite as much inflammation in the adjacent vessels. It may be applied in the form of a plaster mixed with flour and a little charcoal, or the dry powder may be used. In using this, as with the oak caustic, the application of a poultice once or twice a day will be a necessary part

of the general course. These, now, with such collateral means of local or general influence, as the circumstances of the case may suggest to the intelligent practitioner, comprise the measures to be relied on in the radical treatment of this form of stricture.

In those hopeless cases, where a merely palliative course of treatment is to be pursued, such attention should be given to the bowels as may be necessary to keep them in a quiet, yet soluble state. In case of constipation, a mild aperient may be given, and where there is a tendency to diarrhœa, which is most likely to be the condition in the advanced stage, mild, soothing, yet restraining injections, and the internal administration of opium will be proper. If there is much pain or uneasiness at the same time that opium is contraïndicated, the extract of hyosciamus may be given.

HEMORRHOIDS OR PILES.

There are few complaints for which a practising physician is more frequently called upon to prescribe, than piles, and there are few diseases in the treatment of which he will often find it necessary to exercise more skill and perseverance. It behooves us, therefore, so to consider the symptoms of the affection and the causes operative in its production, as to attain a perfect understanding of its nature and proper management.

Every person knows what is meant, in common parlance, by the term piles, and if successful treatment affords evidence of correct information in regard to the character of the difficulty, the domestic practitioner might sometimes claim higher attainments than some men of science. But within the profession, as well as out of it, the circumstances connected with the cause of the disease have never been sufficiently observed and considered, otherwise the frequency of its occurrence would have been greatly diminished and its treatment much more successful.

The term *Piles* or *Hemorrhoids* has generally been applied to tumors that form about the rectum, either externally or internally, and also to discharges of blood, more or less copious, from the lower part of that tube. Though a free discharge of blood does frequently accompany hemorrhoidal affections, yet I am entirely satisfied that many of those cases of copious hemorrhage from

the rectum, met with in practice, are not referable to hemorrhoidal swellings; the blood merely escaping from the veins of the anus, without the existence of tumors, and unattended by much pain.

Pile tumors may be said to present themselves in three general forms:—First, *External Piles*, situated mainly below the sphincter ani muscle; Secondly, *Internal Piles*, located within the rectum; Thirdly, *Bleeding Piles*, which may be either external or internal. The term *Blind Piles* is sometimes employed, also, to designate tumors, whether external or internal, which do not bleed. It may, however, be remarked, that the distinctions here mentioned have reference rather to the popular understanding of the affection, than to any differences in a practical or scientific point of view: in other words, the terms employed merely denote the position of the tumors or the symptom of bleeding, which may, as above remarked, occur in the absence of hemorrhoidal tumors, but the intrinsic nature of the difficulty is the same in all these varieties.

The hepatic obstructions usually coëxisting with hemorrhoids, and the influence such a condition of the portal circulation seems to have upon the nervous sensibilities of the system and cerebral functions, produces, in many cases, a train of symptoms which indicate what some writers have termed the “hemorrhoidal effort,” or what may with propriety be called the *hemorrhoidal diathesis*. This state of the system is often marked by general nervous excitability, mental depression, and symptoms of functional derangement in most of the organs of the body; or, to be more minute, by general debility and uneasiness, constipation of the bowels, loss of appetite, a furred tongue, distress or colic pains in the abdomen, and more or less pain in the head, with gloominess of feeling.

The constitutional symptoms may precede those of a local character for a longer or shorter period, though in some instances the general disturbance is so slight as to attract little or no attention. The *development of hemorrhoids proper* is attended with symptoms of congestion and irritation in the rectum, in addition to those of a general character—such as a sense of weight and downward pressure in the lower bowel, frequent calls to stool without any discharge, with pain or uneasiness in the rectum. These symptoms

may occur and continue for a time, and pass off without the appearance of pile-tumors, or they may increase until the local disease is fully developed. If the attack has not been preceded and caused by constitutional derangement, it rarely fails to produce febrile action with symptoms of general disturbance.

The *primitive* type of a hemorrhoidal tumor is merely a distended or varicose condition of a portion of the inferior mesenteric veins, produced by more or less fullness, and increased by local irritation in the sphincter muscles which generally produces a degree of inflammatory action in the vessels involved, and frequently in adjacent structures.

Each recurrence of this local engorgement and inflammation, though terminating in resolution, can scarcely fail to produce some degree of adhesion, and consequently every successive attack increases the thickness in the coats of the vessel, until a sensible induration is produced, constituting a tumor of greater or less dimensions. If the tumor should now be laid open, it would be found to consist of the coats of the vessel thickened by adhesion with surrounding textures, with a small cavity filled with dark, venous blood in a coagulated state. So long as this cavity is continuous with the vein from which it was formed, pressure upon the tumor will cause it mostly to disappear by expelling the blood from the cavity, but when the pressure is removed, the former dimensions will be restored. But when the induration has proceeded so far as to cut off communication between the vein and the varix or cavity of the tumor, the coagulated blood becomes a source of irritation and inflammation, and additional adhesion occurs by the effusion of lymph. In this way a vascular, fleshy, spongy, and somewhat elastic tumor is produced, having the character, in most cases, of a slightly pendulous excrescence, attached by a narrowed neck-like base. The form of the tumor is no doubt produced by compression of the sphincter muscles.

I have now given you a brief description of the different stages in the formation of a pile-tumor. But it should be remembered that though each tumor is thus formed by the enlargement of a small vein, that these veins being numerous, several tumors may be formed at the same time or in succession, and that in this way a large portion, or even the whole of the circumference of the

outlet of the rectum may be occupied by tumors varying in size from the bigness of a bean to that of a walnut or perhaps larger.

Hemorrhoidal tumors may be formed at the lower edge of the sphincter, at its upper edge, or between those points. When situated near the upper border of the sphincter, their position will generally be within the bowel, for the contraction of the muscle will tend to press them upwards, so that they constitute internal piles. They will, it is true, be brought down during defecation if their size is considerable, and appear externally, but will usually be drawn back as the muscles contract; though when they are very large and the mucous membrane somewhat relaxed, they often require some pressure to cause them to return. Where the tumors are formed near the verge of the anus, the action of the sphincter will be, of course, to force them downward, and hence they become more and more prominent externally as they increase inside. They may originate so low indeed, as to become covered in part by the skin as they increase in size.

In some cases the varices become so distended as to burst and discharge a large quantity of dark venous blood, and this constitutes what is termed *bleeding piles*. Where bleeding occurs, though considerable soreness and pain is experienced for a number of days, it usually prevents the induration that often attends an attack of piles; hence persons who are subject to bleeding piles, rarely have those permanent fleshy tumors so common in other cases. If the ruptured varix happen to be within the rectum, it forms a case of "internal bleeding piles."

Where pile-tumors have been formed in the manner heretofore described, they are subject, of course, to constant attrition, incident to the movements of the body whether walking or sitting, to the passage of the fæces and the contractions of the sphincter; by this means the epithelial covering often becomes so thickened and indurated that the tumors become almost insensible, and present the character of *wart-like excrescences* occupying the verge of the anus.

The inflammation in the hemorrhoidal tumors may progress so far as to result in *abscess*, which may produce a fistula. Or, the inflammatory action may degenerate into a degree of irritation,

which, without much pain, will keep up a constant secretion of mucus, as seen in chronic dysentery.

A few words may be necessary on the subject of the *diagnosis* of hemorrhoids. The only diseases with which this affection is likely to be confounded are polypus and prolapsus ani. It will be readily distinguished from *polypus* by the mode of attack and the difference in the character of the tumors. Polypus comes on in a very gradual manner, without any particular paroxysms of pain or distress; and is not when formed very tender under pressure, while piles are often exquisitely tender and generally very painful, come on more rapidly, and occur in paroxysms. Polypus has usually a smaller neck, and is less solid and elastic than the pile-tumor. From *prolapsus ani* piles may be easily distinguished, by the uniform or ring-like character of the swelling, and especially the red and raw appearance of prolapsus.

Let us now, gentlemen, inquire into the *causes* of piles. On recurring to the observations already presented, while speaking of the development and symptoms of the affection, you readily perceive that two circumstances, or rather, conditions of the system, must exert a powerful influence in producing hemorrhoids; I mean *torpor of the liver* and *constipation of the bowels*. As all the blood from the mesenteric veins must pass through the portal vein and its minute ramifications in the liver, it is evident that any obstruction in the latter organ must, in proportion to its extent, retard the current of blood from the intestines and dam it up in the mesenteric veins, producing engorgement of their radicals, especially of those which are lowest and most remote, as those of the rectum. But obstruction of the hepatic circulation is usually accompanied by constipation of the bowels, a condition which of itself greatly favors the production of piles. The accumulation of fecal matter in the large intestines must, of course, interfere with the free circulation of blood in the mesenteric veins, while its occasional discharge in large consolidated masses, forcing the blood down into the lower extremity of the bowels, and irritating and sometimes wounding the mucous surface, tends directly to produce a varicose condition of the hemorrhoidal veins and an inflammatory condition of the parts. As a matter of course, then, where hepatic obstruction and torpor of the bowels exist at the

same time, there is a twofold tendency to hemorrhoids, and whatever operates to produce either or both these conditions should be regarded as a cause of local disease. A *plethoric state of the circulation*, resulting from sedentary or indolent habits, and a rich stimulating, and nutritious diet, also greatly predispose to the development of piles; and this condition may, and indeed often does, coëxist with portal obstruction and constipation. Hence it is, that individuals accustomed to lives of inactivity, and who, at the same time, are fond of "good living," are so frequently afflicted with this disease.

Pregnancy is another condition that favors the production of hemorrhoids, especially in the later stages of gestation. The pressure on the ascending vessels greatly tends to produce a congested and varicose condition of the hemorrhoidal veins, as it often does in those of the inferior limbs.

This affection is also produced, in many cases, by the use of *drastic purgatives*, especially the *aloetic* kind; and by irritating injections sometimes employed in the treatment of other affections. *Ascarides* may produce it also, and it is quite a common attendant or result of dysentery or diarrhœa, especially the former, for these cases are generally attended by more or less obstruction in the portal circulation. Inflammation of the prostate and of any of the pelvic viscera may, also, be causes of piles. Where there is a strong predisposition to the affection, it will often be brought on by the friction and pressure experienced in the part, on riding on horseback.

In the causation of piles we may also recognize a hereditary predisposition, which will afford, in many instances, an explanation of its occurrence under circumstances not usually sufficient to produce it; for there is no reason to doubt that hereditary tendency may have as much influence in favoring the development of hemorrhoids as of any other disease.

Treatment. In the healing art, as in political economy and theology, it is of the utmost importance frequently to recur to first principles. Hence it is, that I so constantly urge you to regard the causes of disease as constituting the first and paramount subject for consideration in deciding upon your course of *treatment*. In recurring to what has been said on the subject of the

causes of piles, we shall have very little difficulty in obtaining a clear conception of the indications to be fulfilled in each case.

If the disease is associated with *torpor of the bowels* and consequent accumulations in the large intestines, the first step will be to remove those accumulations, by the administration of cathartics. The choice of remedies from this class of therapeutic agents must be governed by the peculiarities of constitution and the condition of the patient at the time. If there is a red tongue and other symptoms of gastric irritation, a mild cathartic should be selected, such as the neutralizing physic or the seidlitz powders, and the administration of it repeated occasionally, until the desired effect is produced. But if no evidence of such irritation exists, the contents may be removed by a more efficient and speedy cathartic, such as the anti-bilious physic mixed with equal parts of cream of tartar. But, whatever the agent used at first, to unload the bowels, they should afterwards be kept in a soluble condition by means of some mild laxative, so as to secure an easy evacuation daily, avoiding over-action, as that would tend to aggravate the symptoms and materially add to the sufferings of the patient.

If the piles are the result of hepatic congestion, or of portal obstruction from any cause, the remedies to be employed must be directed to the relief of the liver. If there are accumulations in the stomach, as indicated by a thickly coated tongue and other symptoms, a gentle emetic will do much to secure the proper action of the subsequent remedies, and will also exert a beneficial influence on the hepatic torpor, and if no valid objection to its administration exists, it should certainly be prescribed. Any of the emetics which I have recommended in other cases will answer the purpose here, but perhaps one of the best articles that can be used, as it evidently exerts a more direct influence on the liver than most others, is the acetous tincture of lobelia and sanguinaria. Or if the eyes exhibit a yellow tinge and the skin a sallow hue, and there is a thick yellow coat on the tongue, an emeto-cathartic dose of podophyllin or of podophyllum in powders, may be given. But if emesis is not thought necessary, or after it has been produced as at first suggested, a free cathartic effect of podophyllin and leptandrin, or of the compound taraxacum pills, should be

obtained, and afterwards the pills should be given in aperient and cholagogue doses, so as to procure at least one free bilious evacuation every day. The same pills, but in less doses, may be given in cases where there is irritation of the bowels, with diarrhœa.

While these general measures for the removal of the cause in different cases are being employed, much relief to the sufferings of the patient may be afforded by mild and soothing local applications. In those cases which present a soft, elastic, and dark colored swelling, being evidently a distended varix, in which there is a severe throbbing and painful uneasiness, I have occasionally witnessed the most prompt temporary relief from puncturing the tumor, so as to discharge the accumulated blood and allow the vessel to collapse. This measure should be followed by warm and soft fomentations. But where puncturing is not deemed proper or the patient is unwilling to submit to it, a warm starch injection, by its soothing influence, will sometimes afford very prompt relief, especially if followed by a soft poultice of roasted onions, applied as warm as can be borne with comfort, immediately upon the swelling.

Where the spasm of the bowel is so severe as to amount to an entire obstruction, producing, as is sometimes the case, a well defined spasmodic stricture associated with piles, a pill, composed of three grains of opium and half a grain of belladonna may be introduced into the rectum. This may be done by putting the pill into the end of a gum elastic catheter, and after introducing the instrument dislodge the pill by means of the wire. If it is not deemed advisable to use the pill, an ointment made of the wild indigo as a base (*Beach's yellow salve* or *unguentum baptisæ* of the *Eclectic Dispensatory*) with a small portion of extract of belladonna and a little tannic acid will be found a very soothing, antispasmodic application. I have also frequently seen the sufferings of the patient greatly relieved by applying cold water freely to the part, in cases where inflammation and heat existed. It should not, however, be applied with a view of producing and continuing the sedative effect of coldness, but having applied a cloth wet in cold water, it should only be changed often enough to prevent its becoming dry—say once in three or four hours. In these cases I have also generally applied a cup to the coccyx

as near the inflamed part as practicable. I have also applied in similar cases, and with marked advantage, a poultice made by bruising the leaves of common house-leek (*Sempervivum tectorum*), and changed two or three times a day; and in place of this I have found a soft slippery elm poultice answer a very excellent purpose, applied cool and frequently changed.

Where the disease results from pregnancy, and especially after parturition, where the labor has been very severe, it is sometimes exceedingly painful; and I have seen, under such circumstances, tumors larger than a goose's egg. In such cases, the starch and laudanum injections and soft onion poultice have seemed to me to afford more prompt and permanent relief than any other measures I could employ. They may be repeated as often as necessary, to secure their continued effect.

In every modification of the disease, it will be an important point, which you should never overlook, to keep the bowels free from accumulations, by administering some mild aperient, or by the use of such articles of diet as shall secure a soft and full evacuation every twenty-four hours; but more than this, after the operation of the first cathartic, will be unnecessary, and would be likely to do more harm than good. Where a simple aperient is desired, and no other indication is to be fulfilled, a small portion of sulphur and cream of tartar may be taken every morning.

For *bleeding piles*, such of the foregoing treatment as the circumstances of the case may indicate should be employed, and in addition thereto, a strong decoction of oak bark should be used as an injection and the bowel freely bathed with it two or three times a day, or the patient may be directed to wear a compress wet in the decoction and changed as often as may be necessary to keep it moist; and if the case is attended with much pain, great advantage may be derived from bathing the tumors and adjacent parts, freely and frequently, with a liniment composed of linseed oil four parts, and oil of origanum one part. It should be applied two or three times a day, and a piece of soft linen may be saturated with it and kept constantly in contact with the tumor, at the same time that a small quantity of the oak bark decoction is kept within the bowel by occasional injections. I have, in fact, used this liniment with the addition of a small portion of lauda-

num, as a *discutient* to the more recent pile-tumors, having a somewhat fleshy character, where the swelling did not disappear with the decline of the active or acute symptoms, and with excellent effect. While using the liniment for the purpose of discussing the tumors, they should be bathed freely two or three times a day in the cold decoction of oak bark.

Where the tumors have acquired a decidedly fleshy character, and especially where they have a constricted base or neck, there is no measure so effectual and speedy, and at the same time so safe, as the application of ligatures, with a view to their removal. While this means effectually removes the tumors to which it is applied, it is generally followed by the disappearance of contiguous smaller ones, so promptly and completely, as to leave little room for doubt, that the removal of the large tumor exerts a discutient influence upon those which are less fully developed. By this means, too, the tendency to the frequent recurrence of hemorrhoidal inflammation, under slight indisposition, will often be entirely broken up, and the patient enjoy in the future, complete immunity from such attacks. It is a very simple operation, even though the tumors may be situated within the sphincter, as they can usually be brought down by a straining effort of the patient, as in difficult defecation. When the tumor appears, it may be seized with a forceps, armed with a ligature. If they cannot be brought to view in this way, there will be but little difficulty in getting at them by opening the orifice with an anal speculum. Most generally, however, tumors of this kind are situated below the sphincter, and the ligature may be applied without difficulty. Hence, very little instruction is necessary to enable you to perform this simple operation; all that is requisite, is a double silk cord, waxed, which should be carefully drawn so tight as to intercept entirely the circulation in the tumor; for if this is not done, it will greatly increase the suffering of the patient, and require to be tied again, which will produce more pain than the first application. I have, in this way, applied ligatures to quite a number of hemorrhoidal tumors, and have thus far uniformly succeeded; never having realized the inconveniences suggested by some eminent surgeons; for the pain has uniformly subsided in a few hours, and I have never yet found it necessary to remove the lig-

ature till the deadened tumor came away. I cannot but think that the evils resulting from the application of the cord-ligature, described by Dr. Physic, and reiterated by Dr. Gibson, were mostly imaginary, and offered as substantial objections, in an argument in favor of a new method, suggested by the learned author first named. I have, in a number of instances, seen patients going about the next day after the application of silk ligatures to pile tumors, and in every case without any serious trouble following; and I must, therefore, be permitted to recommend the use of such ligatures in preference to those of Dr. Physic. The canula and wire cannot be applied, though but for a short time, without very much incommoding and annoying the patient, while the ordinary ligature encounters no such objection; and as it may be applied so tightly at first as to render its removal and reapplication unnecessary, the objection urged by Dr. Gibson has no force. If tightly applied with a double knot, it must of necessity destroy the vitality of all that it encircles, and of course the tumor loses its sensibility and cannot be the seat of pain, and there is, therefore, no reason for removing or modifying the ligature, but it should be let alone until the slough comes off. If any inflammation should supervene after the ligation of the tumor, the fomentations, soothing poultices, etc., recommended for that condition under other circumstances will, of course, be indicated. But I have generally found my patients far easier the day following the application of the ligature, than they were before; the ligated tumor shriveled and insensible, and the surrounding parts in a far less irritable condition. Very simple dressing may be applied, and as the tumor separates, the part readily heals without much soreness or discharge.

Where the affection has been attended for a *long time by bloody discharges*, to which the system has adapted itself, a question will arise as to the propriety of promptly causing a cessation of the hemorrhage, since the system may substitute it by a lesion in some more vital locality. It is said that the results most to be apprehended, are apoplexy and pulmonary hemorrhage. Hence in patients who have a predisposition to either of these affections, the piles should either be allowed to continue, under merely pallia-

tive treatment, or an artificial drain by means of an issue or seton should be established, and the patient subjected to such general treatment as will fortify his system against the apprehended danger, before the use of means for the radical cure of the hemorrhoids.

LECTURE XXX.

FISSURE OF THE RECTUM.

Introductory remarks—Description—Appearances—Causes—Treatment—General—Local. FISTULA IN ANO : Remarks—Causes—Character—Treatment—Local and General. PROLAPSUS ANI : Character—Symptoms—Cause—Treatment.

It is a little remarkable that a disease so common and so readily recognized, should so far have escaped the notice of authors, as not to be described, till within a comparatively recent period. Dr. Gibson considers it a rare disease; and remarks that “although connected for the last twenty years with the largest hospital in America, I have seen very few cases which could be said to correspond in the symptoms, with the details furnished by writers.” But my experience does not justify this conclusion; since in private practice I have frequently met with it and have treated a number of cases.

This disease requires no very elaborate description, since it consists generally of a mere superficial ulceration of the mucous membrane of the rectum; sometimes wholly within the sphincter muscles, and sometimes mainly without. The usual location will be found in that portion of the mucous membrane of the lower bowel included in the sphincter muscles; but extending above into the free membrane, and commonly so far below as to be seen. It presents the appearance of a fissure, mainly on account of the folded condition of the mucous membrane at this place, produced by the contraction of the sphincter muscles in closing the extremity of the bowel. This fact is distinctly shown by opening the sphincter with an *anal speculum*;—thus spreading out the mucous membrane connected with the *fissure*, when a superficial ulcer will be brought to view, rarely extending through the mucous

membrane ; though occasionally it will be found otherwise. The ulcers, when thus exhibited, present an indolent character, and generally have slightly irregular, indurated and raised edges ; though in recent cases they have a more superficial aspect—without unhealthy induration—and have a vascular and granulated appearance.

The pain accompanying fissure of the rectum occurs usually after every stool, is of a burning and shooting character, and is often very severe for an hour or two after each evacuation—especially if the bowels are costive—producing a spasmodic constriction of the rectum.

This disease sometimes follows chronic dysentery, and I have also met with a few cases connected with the *Mexican* diarrhoea. It is likewise produced by long-continued costiveness, distending the rectum with hardened faeces.

When the disease is confined to the bowel above the sphincter ani, it is productive of but little pain ; though a slight soreness and burning sensation will be experienced after every evacuation. In this case the existence of the disease will be more particularly indicated by a discharge of matter from the bowel, either mixed with the faeces or following the evacuation.

When it is confined to the folds of the mucous membrane below the sphincter muscles, a slight burning will be experienced after the evacuations, followed by a troublesome itching sensation. More or less discharge of a muco-sanious appearance, mixed with pus of an unhealthy and offensive character, accompanies the disease wherever it is located.

In severe and extensive forms of this disease, the irritation produced by it often extends to the bladder, producing irritation and pain in evacuating the urine.

The local affection is generally associated with an unhealthy state of the general system. This is clearly shown by the pale and sallow complexion, associated with more or less disturbance in the digestive functions and general derangement of the secretions.

In the *treatment* of this difficulty, the main indication will be fulfilled by removing the cause that produced it and restoring the general health of the system.

The remedies heretofore directed for chronic dysentery or diarrhoea, will be equally appropriate when they are complicated with this disease. If caused by hardened accumulations in the rectum, they should be removed, and the bowels kept in a soluble state with mild aperients—such as the *taraxacum* pill, cream of tartar and sulphur, congress water, or some other inoffensive and mild remedies; or, if it will answer, suitable articles of diet; while a healthy condition of the skin should be promoted by appropriate bathing, and of the other secretory organs by suitable remedies calculated to bring into action their depurating influence upon the general system. The remedies most in favor with our practitioners for a general vitiated state of the system, are the alterative syrup of our dispensatory and the syrup of stillingia, which, in such cases, should be given for some time.

The *local measures* are no less important in these local and long standing diseases, than those of a general character, though, by restoring the general health and removing the exciting cause, most cases would, no doubt, ultimately recover. But appropriate local appliances will hasten, in all such cases, the final cure.

Those cases presenting the *callous edges* with an indolent general appearance, will be more promptly relieved by the application of the oak caustic. I should remark that the edges and unhealthy granulations should be barely touched with the caustic, as more than this will be certain to produce too great a cauterization. It can be applied by opening the bowel, as for other purposes, with the anal speculum, so placed as not to cover the fissure, or it can be turned when introduced. The part to which the caustic is applied immediately turns dark, when it should be washed off with diluted vinegar, to prevent its further action; and you should be very particular to see that the application is entirely confined to the points desired. One application of the caustic will usually be sufficient, as when the morbid structure, destroyed by the application, comes away, the fissure will present a soft and healthy flesh-colored appearance, and with other mild and simple means, will very shortly be cured. The application of the caustic should be followed by a soft slippery elm poultice to the rectum, and the patient advised to keep still for a few days, in order to allow the irritation to subside and afford greater convenience in changing

the poultice, which should be done three times a day. After the irritation has disappeared, the parts may be washed two or three times a day with a decoction of *hydrastis canadensis*, and then dressed with any simple plaster; such as our black salve or the yellow ointment.

If it should be found that the first application of the caustic, with the subsequent treatment just recommended, was not sufficient to remove the induration and excite healthy action in the parts, or if fungus granulations should sprout up, the parts may be washed every second day with a saturated solution of the sesqui-carbonate of potash, or they may be touched with a pencil of nitrate of silver, which rarely fails to excite a more healthy condition.

If the applications should at any time induce a spasmodic action of the rectum, which the soothing influence of the poultice is not sufficient to relieve, an ointment prepared from the wild indigo, with a small portion of the extract of belladonna, may be applied to the parts, two or three times a day; or the patient may be directed to sit over a decoction of hops, which will rarely fail to afford relief. This may be repeated at any time when the pain is severe.

In less severe cases, not exhibiting the callous and indolent edges, the application, for a few times, of the sesqui-carbonate of potash, in the form of the dry powder, by filling the fissure with it, and the subsequent use of the *hydrastis*, will obviate the necessity of the more severe application of the caustic. Or the nitrate of silver may be applied every second or third day with similar effect. But where there is great relaxation of the bowel, it will often be necessary, in addition to the means just considered, to use as a wash, either by injecting into the bowel, or washing freely with it, a decoction of oak bark once or twice a day.

FISTULA IN ANO.

It may be thought, that in considering this disease in connection with the subjects embraced in the theory and practice of medicine, I am traveling out of the record, or that I am discussing a subject legitimately within the province of surgery. When this disease was mainly treated with the knife, the position assigned it

was proper ; but since other measures are found more successful, and the use of the knife can be altogether dispensed with, in its treatment, the subject should be considered in this connection.

The term *fistula* is used to designate a small, narrow, deep-seated ulcer, and when used in connection with disease of the rectum, it is called *fistula in ano* or *anal fistula*.

This disease consists in a small orifice situated near the lower extremity of the bowel, sometimes external to the sphincter muscle. In other cases the external orifice of the fistula is found from one to three inches from the anal out-let ; in either case, the fistulous pipe passes up by the side of the bowel, above the sphincter muscles, and enters the intestine obliquely through its several coats into the cavity of the gut. The point at which the fistula enters the bowel, is, generally, immediately above the sphincter muscle, though in some cases it is found higher up. Those cases having openings both internally and externally are called *complete* fistulas.

In other instances the fistulous tube passes through the cellular structure at the extremity of the bowel, and extends up some distance by the side of the intestinal tube without entering it, constituting what is called an *incomplete* or *blind* fistula.

Fistulous pipes sometimes commence in the mucous membrane of the lower part of the bowel, and pass through its several tunics into the cellular structure by the side of it, without communicating externally. This is called the *internal* fistula, and seldom continues long before the matter finds its way through the integuments.

These several fistulous formations generally result from abscesses occurring in the vicinity of the rectum, which, from the loose character of the cellular structure at this place, prevents an immediate union in the breach of continuity, but readily healing at the surface ; thus retaining a portion of the matter formed, which burrows still deeper, and extending in both directions, till at length it finds an outlet internally into the bowel, and at the same time, perhaps, discharges again through the integuments at the surface. After the opening is complete into the intestine, some portion of their contents finds its way into the opening thus made, and passing down through this artificial tube, emerges,

with the secretion from the fistula, through the integuments. The inflammatory action accompanying the several stages of this process produces more or less adhesion and induration, while the secretion of pus and the feculent matter from the bowel, soon form a track of a permanent character, which shortly takes on the function of a secreting mucous surface. It will be observed, from the description I have given you of the phenomena of fistula, that a small tube-like opening, sometimes externally and into the bowel, but sometimes only externally or internally, with an artificial mucous membrane lining it, and an indurated condition of the adjacent cellular structure, constitute the character of *fistula in ano*.

The disease may consist of a single incomplete pipe, or there may be half a dozen or more occupying the main circumference of the rectal outlet, in different stages of progress, from an imperfect burrowing sore, to a deep-seated and complete fistulous tube. They may also be connected with very little constitutional derangement, or they may be associated with a broken down and contaminated state of the system. As a general thing, however, anal fistulas occur in old and debilitated persons, and weak and contaminated systems.

The discharge accompanying this affection is generally unhealthy and offensive, while the appearance of the local difficulty indicates a corresponding condition of the general system.

Anal fistulas sometimes result from the inflammation attendant upon hemorrhoidal swellings, and they frequently follow the formation of abscesses produced by the common causes of inflammation; such as hardened fæces lodged in the rectum, or local injuries, and in some instances by long and protracted horseback riding.

Treatment. The well settled character of *fistula in ano* presents two main indications—first, to restore the general health of the patient; and secondly, to destroy the mucous surface lining the tubes and the indurated structure surrounding them.

In fulfilling the first indication, all I propose to say, at this time, is that you should be governed by those general principles, heretofore discussed, applicable in the treatment of other disorders involving the general health of the system. The condition of the skin, as exercising a most important influence in the cura-

tive process of all chronic affections, especially, should always receive a full share of attention; while the secretions, generally, as affording the necessary out-lets of effete matter from the diseased tissues, should also be appropriately acted upon in all such cases. The condition of the digestive organs, as preparing the aliment to supply the waste of the system, and at the same time a proper amount of healthy and nutritious food, as a prerequisite to the renewal thus made necessary, should both be the subject of your early attention.

The *alterative syrup*, as a general agent, or the compound syrup of stillingia, may be relied upon in this disease, as the best alteratives we possess; while the gin bitters, or the anti-dyspeptic pill, or the compound taraxacum pill, heretofore recommended for other diseases, each in its appropriate place, as the condition of the system will indicate, may be mentioned as preferable to most other laxatives and tonics in these cases.

As a general rule, while the local applications are being made, patients should be kept, in the main, tolerably still and quiet; but after the principal local appliances are completed, and a healthy state of the local affection is produced, they should then be directed to take as much exercise in the open air as their strength and past habits will justify.

The second indication will be fulfilled with great certainty, by the proper application of the oak caustic, or in some cases by the use of the sesqui-carbonate of potash, with the ligature afterwards properly used in cases of complete fistulas.

The failure to effect permanent cures of this disease by the ordinary operations with the knife, I am well convinced, results from not first destroying the mucous membrane lining the tube and the induration connected with it; so that, if I were convinced that the common method of treating fistula had advantages, in other respects, over the method which I am about to recommend, and I desired to use the knife, I should, as a preparatory measure, make use of the same means, that I otherwise do, where I apply the ligature.

But I have seen such results following the operation, when the knife was used, in a number of cases,—such as the loss of the use of the sphincter muscles and a consequent inability to control

the contents of the bowel, which never follow the use of the ligature,—that I cannot, in any case, recommend that operation; especially, since the course I shall recommend is equally sure, and, in its results, equally prompt, and far more safe to the patient's present and future comfort.

There are various modes of using the caustic, in these cases, each of which has advantages, under certain circumstances, not common to them all. Where the fistula is not very deep, I generally inclose a small portion of the caustic in one end of a lock of cotton, slightly twisted, and pass that part of it up the fistula with a probe, and allow the cotton to remain till the caustic dissolves, when the cotton can be drawn away by that portion of it which was allowed to be without. But if the fistula is deep seated and extends far up by the side of the bowel, a saturated solution of the caustic may be thrown up the *pipe*, with a long, probe-pointed syringe. In this way, not only the extremity of the fistula may be reached, but every part of the lining surface will be cauterized at the same time, and thus be entirely destroyed and carried away in a day or two. This application should be repeated as soon as the slough made by the first injection comes away, and thus be continued till the induration is removed; when, if it be an incomplete fistula, it will readily heal. Care, however, should be taken, while it is healing, not to allow the orifice to close at the surface till it has filled up from the bottom. This can be readily effected by introducing a tent every day, when it is dressed, while the healing process is going on. It will generally be necessary, while the caustic is being used, to apply a soft slippery elm poultice to the part, and change it twice a day.

If the fistula passes through into the bowel, the application of the ligature will be necessary to the cure; but this should not be done till after the callus has been removed by the application of the caustic, as just directed.

Various methods have been suggested for the introduction of the ligature. A very convenient and simple method, and one generally readily performed, is to have a probe made of flexible and inelastic metal, with an eye to it, which, armed with a double silk or linen thread, should be passed up the fistula until it meets the finger previously introduced up the bowel, and thus it can be

readily bent and directed down towards the anus and passed out, when, from its flexibility it can readily be withdrawn, and thus the wall of the fistula will be included. The ligature should then be loosely tied, so that a small, smooth, wooden or ivory "toggle," about an inch long, may be passed under it, and a turn or two taken for the purpose of tightening it. It should thus be turned every day, more or less, as the patient can bear it, till it comes away. Meantime, the patient should keep still, and if the parts should inflame, a soft elm poultice should be applied. When the ligature is through, the fistula will be cured; and, as the induration has been previously removed, it will not be likely to return. It has this advantage, over the common method with the knife, that the fibers of the sphincter muscle unite again, as fast as they are separated; thus securing to the patient an immunity from the risk of a serious deformity, often following the operation with the knife. It has occurred to me as somewhat strange, that the deformity referred to did not more frequently occur than it does, since the fibers of those muscles are wholly separated at once, and prevented from immediate union by a plug of lint, in order to secure the discharge of the callus, connected with the fistula, and ward off a return of the disease.

The common needle-eyed silver probe, if not too large and stiff, may be used in the same way as the flexible one. I have used it myself in a few cases; and when the opening into the bowel is not too far up, the operation can be accomplished without much difficulty.

The instrument invented by Dr. Gibson, of Philadelphia, I have no doubt is a valuable contribution, and better, perhaps, than anything heretofore suggested for this purpose. It consists of a small silver canula, slightly curved, about five inches long, together with a portion of the mainspring of a watch, filed down to suit the opening in the canula, with one end made of a small silver bulbous point, and the other having an eye. The spring, thus prepared and armed with a ligature, is passed through the canula, previously introduced up the sinus, and through into the bowel, with its end in contact with the finger previously in the rectum. The spring, when passed into the canula and coming in

contact with the finger, will readily be directed, brought through the rectum, and drawn out.

That form of fistula occurring on the inside of the bowel and extending through into the cellular structure, will generally be cured by touching the inner surface with the nitrate of silver ; or if it is found, upon examination, to have somewhat calloused edges, a very slight touching with the oak caustic, and then filling up the orifice with a short piece of candlewick, allowing the other portion to remain out of the bowel, in order to its more ready removal, will be necessary. This should be repeated every day and the fistula carefully cleansed, and another pledget again introduced. The object of thus filling up the fistula, is to prevent any of the contents of the bowel passing down into it, and thus interfering with the adhesion desired. In making these applications, in this form of the disease, the aid of the anal speculum will be indispensable.

When there is not any considerable irritation in the parts, so as to require the application of a poultice, any simple salve, such as our common black salve, will be all the dressing necessary in the case.

When, however, the applications produce irritation and pain, the parts may be fomented, two or three times a day, by the patient sitting over a vessel of hot hops, in addition to the application of the elm poultice. Or a soothing starch and laudanum injection may be used, two or three times a day. Or, if the irritation connected with it produces a spasmodic action of the sphincter muscles, the belladonna ointment, heretofore directed in other affections of the rectum, may be used. In making these different applications, it will generally be necessary for the patient to wear a T bandage.

With these measures, efficiently and properly applied, I have no hesitation in bespeaking for you, when you shall have assumed the responsible duties of the profession, uniform and general success in these cases.

PROLAPSUS ANI.

This affection consists in a descent of a portion of the rectum through the sphincter ani ; presenting a red or purple, and irri-

tated tumor-like projection below the external orifice of the bowel. In slight cases, however, the tumor consists of mere folds of the relaxed mucous membrane, projecting below the sphincter muscles and presenting the appearance of a fungus growth attached to the circumference of the anal out-let. But where the tumor is larger, and more projecting, the whole structure of the bowel becomes inverted, accompanied with a more sensible constriction of the sphincter muscles. Instances are mentioned in the books, in which the colon and even the cœcum have been forced through the rectum. These are extreme cases, and may challenge our credulity, yet the extent of the prolapsus differs greatly in different cases; but, in most instances, the invaginated portion consists only of the mucous membrane.

It is not very common for this difficulty to come on all at once; but by a slight and gradual increase. Where relaxation of the bowel exists, it gradually augments in size until the whole structure of the bowel protrudes. It will at first be observed to consist of a small rounded tumor at the verge of the anus, occurring only when the patient is in the act of defecation; and usually disappearing spontaneously; or it can be returned with little difficulty, by slight pressure. If not relieved, it will be found to gradually increase in size, and will require more force, and often assistance to return it. In this case, if allowed to remain any great length of time, the contraction of the sphincter muscles interrupts the circulation, giving the tumor a dark purple appearance, and would, no doubt, if not relieved, result in mortification. But it does often remain protruded for a long time, without producing any serious inconvenience. This, however, is where the inverted portion is confined to the folds of the mucous membrane, and where no great irritability of the sphincter muscles exists at the time.

Though it does generally make its appearance very gradually, yet in some cases the protrusion occurs very suddenly, when in the act of defecation, where relaxation of the bowel had previously existed, and often causes great alarm, as it presents a frightful appearance.

The *causes* of prolapsus of the bowel are any influences that produce an undue relaxation of the parts involved. It is a com-

mon sequel of chronic dysentery, and sometimes accompanies the acute form of that disease. It is very common among children during their second summer, where great relaxation follows the long continued irritation of the bowels, attendant upon such cases. The long continued use of aloetic purgatives, has been followed by prolapsus of the bowel; so also the local irritation produced by worms, especially the ascarides, and by other irritating substances lodged in the rectum, has been known to be followed by this difficulty. I have also met with a few cases following the severe straining and pressure attendant upon parturition. This is more apt to accompany those cases, in which great atony of the lower bowel had previously existed for some time.

Prolapsus of the rectum is usually accompanied by an irritated condition of the bowels, and if diarrhoea is not an attendant upon it, that difficulty is very likely to be developed by any slight occurrence calculated to produce it.

This disease is mainly confined to children, though it sometimes occurs in advanced age and more rarely in the meridian of life.

Treatment. The treatment of prolapsus ani may be said to be palliative and radical; or that which is necessary to return the invaginated part, and that which is necessary to prevent a descent.

Various methods and expedients have been recommended for the purpose of reducing or returning the prolapsed bowel. In general, where the protruded part consists of folds of the relaxed mucous membrane, the patient, if a child even, unless too young, will be able by slight pressure to return it. Or at any rate, very little constant pressure in such cases, by an assistant, will be all that is necessary. So, also, in the ordinary cases met with, where the bowel proper protrudes, slight, uniform, and constant pressure with a soft, folded, linen rag, wet in warm water, will be sufficient to accomplish it. But cases are occasionally seen in which all the pressure that can be safely made, will not be competent to effect its return. And I have found, in several instances, the oiled finger, even, as recommended by Dr. Wood, not to succeed in replacing the bowel, and causing it to remain. For, however much you may oil the finger, the mucus of the bowel possesses

the property of adhering to the finger, to an extent sufficient for the bowel to follow it, when it is withdrawn. It was in a case of this kind, where every effort had failed in permanently replacing the protruding bowel, that I resorted to the expedient of pressing up before the finger, a soft, oiled rag, and thus succeeded in completely replacing the protruding parts; and, after waiting a few moments for the sphincter muscles to contract, was able to withdraw the finger without the bowel following — when the rag was readily removed. You may think this rather an unimportant and trivial matter, but my word for it, you will not think so when all other known methods shall fail you.

After the bowel has been returned, you should keep the patient quiet for a short time, and make gentle pressure, by means of a compress and the T bandage. And the bowels should be kept moderately open with mild aperients, or what is better, if it can be made to answer the purpose, the use of an appropriate diet; such as rye mush and molasses, or, what is now a very popular article of diet for such purposes, and I think deservedly so, cracked wheat or “*grits*” boiled, and used similar to rice or hominy. But many of these cases will be accompanied by a constant tendency to diarrhoea, which will be necessary to be kept moderately restrained. For this purpose, small doses of the compound neutralizing physic, say dessert-spoonful doses for children, may be given three or four times a day. If this is not sufficient, a decoction of blackberry root may be used, and will be found a valuable astringent and tonic. It should be given to a child two years old, in doses of a tablespoonful, three times a day. Or, if a more decided astringent is required, the compound tincture of catechu and paregoric, in equal parts, may be given in teaspoonful doses, as often as may be necessary to keep the bowels moderately restrained.

While these *general measures* are being used, others of a more local character are not much less important. The patient should be directed to guard against straining, when at stool, and to effect this with certainty, defecation should be performed in as nearly an erect posture as possible. The bowel should be freely bathed after every evacuation, especially if it comes down, with a strong decoction of oak bark, and be followed with a compress wet in

the same, and retained there with the T bandage; changing it sufficiently often to keep it moist; while the lower part of the abdomen and back should be freely bathed with the same astringent decoction, twice a day, and a small portion of it should be thrown up the bowel with a syringe, three or four times a week. With these measures, perseveringly applied, I have seen many cases of an obstinate character, both in adults and children, permanently relieved.

But an occasional case will be found, in aged and debilitated persons, in which ulceration and unhealthy granulations exist on the mucous membrane of the rectum. In addition to the means just alluded to, the ulcerated points will be required to be touched, when the bowel protrudes, for a few times, with the nitrate of silver; or the granulated surfaces may be sprinkled over with the powder of the sesqui-carbonate of potash, till a more healthy condition is produced. These cases will be benefited by an injection of a decoction of the *hydrastis canadensis*.

LECTURE XXXI.

COLIC.

Varieties. SPASMODIC or WIND — BILIOUS — PAINTERS'. WIND COLIC: *Symptoms—Cause—Treatment* BILIOUS COLIC: *Symptoms—Nature—Cause—Fatality—Anatomical Character—Treatment—Particular Remedy—Dioscorea—Remarks—Other Treatment.* PAINTERS' or LEAD COLIC: *Distinction—Symptoms—Paralysis—Chronic—Cause—Remarks—Diagnosis—Prognosis—Anatomical Character—Treatment—Prevention.*

In treating on the subject of colic, authors generally describe *three* varieties. Some recent authorities mention others which are more or less important. But for practical purposes it will suffice to follow the usual divisions.

The *first* variety is *wind* or *spasmodic* colic; the *second* is *bilious* colic; and the *third* is *lead* or *painters'* colic. Each of these varieties develops symptoms somewhat peculiar, and requires a different mode of treatment. It will, therefore, be better to consider the different varieties separately, than to attempt the discussion of them all together.

Wind or *spasmodic* colic occurs among children as well as adults. It frequently arises from over-distension of the stomach by cold substances, such as frozen apples; from articles that generate wind in the stomach; from the fermentation of undigested food; and, in infants, from the souring of milk on the stomach. It is very apt to occur in dyspeptic subjects, and is by turns very painful, from the excessive accumulation of gas in the bowels, which is either belched up from the stomach, or passed off by the intestines. It may be caused by acrid secretions producing a spasm of the muscular coat of the bowels when they are

in a torpid condition ; though this is rarely the case, as the irritation would be likely to increase the peristaltic action, and diarrhoea would shortly follow. It may, however, be excited by the sudden obstruction of gaseous accumulations from "taking cold." Repelled cutaneous eruptions are enumerated among the causes, but as this would be likely to produce irritation or inflammation, it may be considered equivocal. It is also said to be produced by translated rheumatism, but this is rather doubtful, as, in that case, it would more probably assume the character of bilious colic.

It usually comes on suddenly, and as often suddenly disappears, depending on the course pursued for its relief, on the character of the cause, on the *effects* produced in relieving the system of the offending cause, and somewhat on the peculiarities of the constitution affected. It rarely produces any constitutional disturbance ; the pulse is seldom excited, nor are the secretions particularly deranged. The accompanying pain, though more or less constant, is usually paroxysmal. Pressure, in wind colic, rather gives relief ; but, in inflammation of the bowels, increases the pain.

This form of colic is painful while it continues, but rarely proves fatal. In some cases, however, the continued irritation which must, more or less, necessarily attend the acrid accumulations, would, if not relieved, excite a grade of inflammatory action that might prove fatal. The same result might follow the great distension of the bowels from accumulations of flatus.

The *treatment* is very simple, though this will depend somewhat on the cause of the disorder. If it arises from taking into the stomach a large amount of fruit, frozen or otherwise, or any other irritating substances, or if the patient has taken a full, hearty meal, the most reasonable course would be to give an active and speedy emetic. This will generally afford prompt relief. But if an emetic will not answer every purpose, a brisk cathartic should be administered. Our anti-bilious physic is a remedy of great value from its speedy and easy action, though I do not recommend it so often as I formerly did, or as some of our physicians now do. In the treatment of diseases, generally, cathartics are not so frequently indicated as they formerly were. Since the prevalence of cholera in 1834, a greater tendency to

gastro-intestinal irritation is found to exist. But in this particular form of disease, when the bowels are loaded with acrid accumulations, there is nothing more certain to afford relief than the mild and copious action of our anti-bilious physic. Where the symptoms are urgent, a cathartic injection may also be resorted to, and this may be all that will be necessary, as it frequently affords immediate relief, and gives time for the operation of the physic. If some anti-spasmodic—such as the infusion of assafoetida, castor oil, spirits of turpentine and molasses—is added to the injection, it will prove more effective and immediate in its action. Fomentations on the abdomen, when the pain is severe, will have a good effect. If, however, the pain is intolerable, and the object is to afford temporary relief before the main indication is fulfilled, the sudorific tincture may be given, and it will generally answer the purpose. Or you may administer teaspoonful doses of equal parts of tinct. opium, tinct. camphor, and essence of peppermint. It will generally be necessary to obtain temporary relief before resorting to more active treatment with children, as they are liable to be thrown into convulsions. The dose of the sudorific tincture should be adapted to the age of the patient; fifteen or twenty drops will be proper for a child fifteen months old, and should be repeated once in two hours till the system is relieved. You may then follow immediately with the neutralizing physic, which corrects the acidity of the stomach and bowels, and often acts as promptly as an anodyne, although it possesses no anodyne property. I have seen children relieved immediately by this means. If great irritability of the stomach exists, sinapisms to the epigastrium and small doses of the neutralizing physic will rarely fail to have a good effect.

BILIOUS COLIC.

Bilious colic is a more serious and formidable difficulty than wind colic. The latter is often mistaken for it, and it is therefore thought to be far more frequent than it really is. In fact, however, bilious colic seldom occurs in a life-time of practice, and this simple fact almost precludes the idea of its being connected with the liver, as the term seems to indicate. We so often find both functional and structural disturbances of the liver, that it would

seem, if bilious colic is dependent on that organ, it would be more common. At the same time, I do not deny that the liver may become involved, that it may be too active or torpid, during the progress of this disease. But its rare occurrence in this country, and the fact that all the cases which I have treated,—being only some three or four in twenty-five years' experience,—were promptly and permanently cured by a remedy which produces no cathartic action of the bowels, and no apparent action of the liver, have satisfied my mind that it is not in any way necessarily dependent on hepatic disturbance.

Bilious colic is sometimes preceded by symptoms resembling those of the forming stage of our autumnal fevers: derangement of the stomach; sense of weariness; loss of appetite; a furred tongue, and feelings of more or less debility. There is constant pain during the whole progress of the disease, aggravated by regular paroxysms of increased suffering, and amounting between the paroxysms, to uneasiness, rather than pain. This is at first located in the centre of, but gradually diffuses itself over the entire abdomen; and is accompanied by febrile reaction, which constitutes a marked difference between bilious and wind colic. This febrile state of the system is preceded by a chilly sensation, and is attended with frequent pulse, dry skin, furred tongue, and bilious vomiting. From the latter symptom the name of the disease is derived. But the vomiting at first is not of a bilious character. It is only after the contents of the stomach are discharged, and the nausea continues, that bilious matter is thrown up. The effort of vomiting often produces a regurgitation of bile into the stomach. The tongue is usually covered with a whitish coat, which, as the disease progresses, becomes thicker and more yellow.

The abdomen is distended, and in the latter stage of the disease is tender and painful under pressure, which, you will remember, is not the case in spasmodic or wind colic. Febrile symptoms are common to bilious colic and peritonitis. But they may be distinguished by the absence of bilious vomiting and paroxysms of pain in the latter, although vomiting occurs in peritonitis, when inflammation exists in the peritoneal covering of the stomach. The

reliable symptoms are the severe paroxysms of pain, uneasiness and restlessness, in this disease, and their absence in peritonitis.

In regard to the *nature* of the disease, but little can be said with any certainty, and in such cases, I am inclined to think it is wise to say but little. When I have no opinion, I desire to express none, and, in this case, the best I can do is to give the opinion which I have formed from reading and reflection, and a limited experience in this disease. It is my impression that bilious colic is really a nervous disease, and that the essential difficulty is spasm of the muscular coat of the bowels. My reason for this opinion is based upon the results of treatment and post mortem developments. I have seen bilious colic continue after copious evacuations of the bowels had been procured. If, then, the accumulations in the bowels were the cause, why did the symptoms continue? Or, if the biliary secretion was the cause, why did not the symptoms subside when that accumulation was discharged? But, so far from this, all the cases which I have treated were relieved without any evacuation of the bowels, till after the spasm had completely ceased. If I was not in possession of the remedy which I will soon describe, I should administer powerful anti-spasmodics. If this opinion is not satisfactory to you it is to me.

The most common *cause* of bilious colic is exposure to sudden changes of temperature, when the system is predisposed to the existence of irregular neuralgic diseases. By such exposure the neuralgia is suddenly transferred to the muscular coat of the bowels, and a spasm is the consequence. The natural peristaltic motion of the bowels is thus arrested, and the biliary secretion, which should pass down into them and perform its office in the process of digestion, is retained in the duodenum. From the effort of that organ to rid itself of the offending irritant, which is completely barred from a downward passage by the spasm, it is carried up, by the inverted peristaltic motion of the duodenum, into the stomach, and is thence thrown up by vomiting. This course continues until the spasm of the bowels is relieved and the secretion from the liver resumes its natural direction. So also any other circumstance calculated to bring on a spasm and the consequent obstruction, may develop this disorder. It may, in this way, follow translated rheumatic affections, or other nervous dis-

cases. The opinion, therefore, that it is produced by vitiated bilious secretions is, undoubtedly, erroneous. For, in cases of overaction of the liver, and consequent discharge of vitiated bile into the bowels, the effect would be irritation of the mucous membrane and consequent diarrhœa. This view of the subject is compatible with the soundest induction from the facts of the case, and is fully sustained by the phenomena of the liver already described.

The fatality often attendant on the drastic-cathartic course, which prescribes the whole array of purgatives, from senna and manna through the long catalogue of oil and turpentine, calomel and jalap, aloes and scammony, croton oil and elaterium, and, finally, to cap the climax of folly and empiricism, large doses of metallic mercury, is strongly confirmatory of the views which I entertain, and upon which I predicate the treatment which I have to recommend. I am convinced that very few cases would prove fatal, with proper treatment. High febrile action, rapid pulse, sallow complexion, a greatly swollen condition of the bowels, extreme restlessness and continued constipation, would be portentous of evil — especially if these symptoms were apparently increasing; while an amelioration of the general symptoms would indicate favorable results.

The *anatomical developments*, owing to the comparative rarity of the disease, and the few opportunities consequently afforded for post mortem investigations, are less perfectly understood than could be desired, and our knowledge is, therefore, too limited to form an adequate opinion of its true character. We may suppose, however, that they would be as different as the causes producing it. So far as they have been observed, the appearances very satisfactorily sustain the views which I have set forth in accounting for the symptoms of the disease. If it should appear that the passage could not have been obstructed by intromission, nor by inflammation arising from an impacted condition of the bowels, then it would be evident that the "obstruction must be caused by some derangement or deficiency in the action of the muscular coat of the intestines." And this accords with the developments which have been observed. A considerable portion of the bowels is usually found presenting a "cord-like contraction" below a

distended portion, which has evidently resulted from the accumulations produced by the obstruction. All cases terminating fatally will have more or less evidence of inflammatory action, as a necessary consequence of the continuance of the obstruction. This is inevitable, and has been uniformly observed.

The remedy upon which I rely in the *treatment* of bilious colic is *dioscorea villosa*. I have used it with entire success in all the cases that have come under my care. In one case that had been previously treated forty-eight hours with injections, fomentations, anodynes and cathartics, without success, the patient was relieved in half an hour by taking one dose of dioscorea. In another case, to which I was called in the night, the patient, who had been suffering severely for twelve hours, was perfectly relieved in a few minutes and soothed into quiet sleep. It has never been known to fail, and I should rely upon it with entire confidence in all cases of this disease. The philosophy of its therapeutic action may not as yet be fully understood or clearly explained. That it is eminently adapted to the case is very certain, and *that*, after all, is the main point in practice. You may be interested to learn, that the knowledge of its virtues was in possession of the same old German, who has given name to our Bones' Bitters, and who was also famous in his neighborhood for the treatment of bilious colic. The recipe was obtained from him by a medical student, whom he had successfully treated in that disease, after he had been given over by other physicians.

The plant is commonly called *yam*, and is a very modest and interesting little vine, with perfect cordate and nerved leaves, of a light green color. Once seen, it will rarely be forgotten or mistaken. The root lies horizontally just under the surface of the ground, and is of uniform size, both ends appearing truncated. The vine shoots from the body of the root at different points, frequently three or four from a single root. The root is woody, varying in size, from that of a goose quill to half an inch in diameter, and is from six inches to one and a half feet in length. About an ounce of the root is made into a decoction in a pint of water, and half of this quantity is given at a dose.

If you have not this remedy at hand, it is important to know what is next best. I would not advise an active purgative treat-

ment till the spasm of the intestine is relieved. This may seem to be the first indication; still, if it be a well defined case of bilious colic, I should first of all relieve the spasm, and then the bowels will often act without much assistance. You can not expect to derive benefit from purgatives, until the principal difficulty is removed. And for this purpose I should give powerful antispasmodics and active diaphoretics, with counter-irritation over the bowels. Assafoetida, with the sudorific tincture, may be given in drachm doses, and repeated once in two hours, till the patient is relieved; or, if the stomach is irritable, the preparation may be administered in the form of enema, and a pill of assafoetida and gum opium given in doses of two grains each, and repeated every two hours. In severe cases, I should have no hesitation in administering chloroform in sufficient quantity to produce its full effect, at least when the dioscorea could not be obtained. When the measures first resorted to fail, the aperient recommended by Dr. Abercrombie, being, as it is, an excellent antispasmodic, might be used with the prospect of favorable results. He recommended small doses of aloes and hyoscyamus frequently repeated. If all these means should fail, more active measures would be worthy of consideration. In such cases, I should be inclined to administer quinine and opium, and, from theory merely, would advise you to try it, especially in the western country. Cupping over the bowels, when inflammatory symptoms existed, might also be resorted to, at any time during the progress of the disease. I have also seen excellent effects produced, when there was severe pain connected with fever, by applying a large folded towel wet in cold water, and repeated once in three or four hours, or as often as it begins to get dry.

An old school physician of great respectability and skill, from Connecticut, informed me, that he had a remedy which had proved successful in this disease. It is very similar to the remedy called by Dr. Beach "Hull's bilious colic physic," and is composed of warming aromatics and active physic. The prescription is as follows:

| | |
|---------------|-----------|
| ℞ Mace, | } āā ʒij. |
| Cloves, | |
| Ginger Root, | |
| Nitr. Potass, | |
| Gum Myrrh, | |
| Spn. Saffron, | |
| Cinnamon, | |
| Aloes, ʒij. | |

Pulv. Mix. Dose 30 grs. every two hours.

It will be perceived that this prescription is a stimulating, aromatic purgative, and I have no doubt, might have the effect of quieting the irritability of the stomach, and relieving the spasm of the bowels. At the same time, its cathartic properties would be likely to increase the peristaltic action, and thus answer the twofold indications of the case.

LEAD COLIC.

The *third* variety of colic is variously denominated *colica pictorum*, or *painter's colic*, and *saturnine* or *lead colic*. It generally comes on very gradually, perhaps as much so as any other disease. It is supposed, and in fact known, to be produced by the slow action of a specific poison. Before any of its local symptoms are fully developed, there will be, for some days, more or less depression of the nervous functions, despondency, mental debility, and a disinclination to either mental or physical effort, with a feeling of wretchedness and gloom. If it should be the first attack, the patient will scarcely suspect the cause of his symptoms, or be aware that they are the premonitory encroachments of this disease.

The first symptom of positive derangement is a sense of weakness, a sinking, collapsed feeling in the epigastrium,—a symptom peculiarly characteristic, and appearing before any positive pain is developed. This uneasiness, first felt in the epigastrium, gradually extends down into the umbilical region. It finally increases into a distinct pain, described as a kind of twisting sensation, similar to spasmodic action. And it is found that the bowels really are in a state of permanent muscular contraction, and the intestines in a positively twisted condition. Nausea is among the early symptoms, and sometimes, though not often, increases until vomiting follows. The ejections, however, are not of a bilious character, but are merely the natural contents of the stomach.

Before the disease is fully developed, the patient has a constant desire to evacuate the bowels; yet his efforts to do so are entirely ineffectual, for they are almost always obstinately constipated. A physical examination of the bowels shows a very different condition from that of any other form of colic. In the other two varieties, there is usually a full, and in many instances, tympanitic condition of the abdomen, while in this you find precisely the reverse. And it may be regarded as a diagnostic symptom. The bowels are retracted, with a hardened and tense condition of the parietes. The testicles are not unfrequently drawn up, and the irritation often extends to the neck of the bladder, producing difficult urination. The tongue exhibits a very peculiar appearance, differing from that in almost all other diseases. It is very little furred, but appears bleached, or white, and is soft, relaxed and flabby, while in bilious colic it is thickly coated. The urine is always scanty, and sometimes almost entirely suppressed.

The pain, described as being of a twisting nature, is not aggravated by pressure, as you will remember it is in bilious colic, while in wind colic it is relieved. This peculiarity, with the retraction of the intestines, will enable you to distinguish lead colic from the other varieties. You will bear in mind, however, that in the last stage of the disorder, when fatal inflammation has set in, a tympanitic condition of the intestines will be found, which might be mistaken for some other disease of the bowels. Inflammation is not a necessary attendant on lead colic, but, where it is complicated with inflammation, you would naturally expect to find the abdomen in a tympanitic condition, and such is the case. Post mortem examinations do not usually show positive disorganization; yet we occasionally find it present, though it is not diagnostic.

Paralysis of some part of the system is sometimes an attendant symptom. Sometimes it is confined to one arm, sometimes to a lower limb, and in some cases the tongue is completely paralyzed. The authorities speak of a form of paralysis, which is considered to be the result of the poisonous influence of lead, and is confined to the forearms. I have seen cases of this kind.

Besides these general symptoms, there are others quite uniformly attending the disease. Patients almost always complain of

a severe pain in the small of the back, which they suppose results from the pain in the bowels, but which, in fact, is precisely the reverse. In such cases you will find tender spots along the spine. Perhaps there is no malady in which restlessness is a more troublesome symptom. The patient experiences a constant uneasiness, and a desire to change his position. He gets up and walks about the room, gets on his knees, stretches himself across a chair, and assumes the most unusual and grotesque attitudes. These maneuverings may seem ludicrous and uncalled-for to the looker-on, but the patient is earnestly seeking temporary relief from his intolerable uneasiness and distress. The pain is more or less constant, but more severe in paroxysms, and in this respect is similar to other forms of colic. If the patient vomits freely, there is a complete temporary subsidence of all the urgent symptoms; yet the sensation of extreme weakness continues, and the respite from suffering is only transient. Patients usually complain more at night than at other times; not, probably, because there is really an aggravation of the symptoms, but they find less to divert their attention from their own sufferings, and time wears heavily away in the silence of night.

The pulse is usually slow and hard, and, if inflammation sets in, becomes affected as in other inflammatory diseases. The skin over the whole surface is exceedingly dry and parched, but not hot, while the extremities are decidedly cool. But if the disease is complicated with active inflammation, or febrile action, you will find the skin hot and dry, and the pulse frequent, small, tense and hard, according to the constitution of the patient. The countenance, in all cases, is sunken, exhibiting marks of extreme suffering, and in some instances having a dark grizzly appearance. I have already remarked that constipation is generally attendant. Where the operation of medicine is procured, the evacuations are very peculiar, having a dark or green appearance, and being usually found in lumps, thus showing a contractile and spasmodic condition of the bowels.

Lead colic occasionally becomes chronic. Nutrition is then impaired, a constant uneasiness is experienced in the abdomen, and the whole system becomes emaciated. The poisonous influence of the lead continues to operate until all the secretions are

disturbed, and every function of the body is performed imperfectly.

As to the *cause* of the disease, very little need be said. The name itself implies that it arises from the poisonous influence of lead on the system. This influence may be communicated in various ways. Persons have been known to take the disease by drinking water caught on the roofs of houses covered with lead, and also from eating fruit preserved in vessels lined with lead. But the most common cause is the absorption of lead through the skin and lungs, and the most common subjects are painters, glaziers, and manufacturers, who are frequently brought in contact with the article in some of its preparations. In places where these preparations are extensively manufactured, it is a very common disease, so much so as to be considered endemic, and indeed it is thought by some to be occasionally epidemic. But I cannot conceive how a disease, acknowledged by all to be produced by a local specific poison, can properly be considered epidemic. It may be that an epidemic influence would predispose the system to be more readily affected by a local poison, but it should not, therefore, be said that it is an epidemic disease.

Great improvements have been made, within a few years, in the processes of lead-manufacture. The fumes of heated lead are, perhaps, the most prolific cause of the disease, and the chief improvement, I understand, consists in an invention by which this cause is obviated. But I regret to find, on visiting the manufactories in this city, (Cincinnati,) that this improvement has not been introduced, and that lead colic is very common among the workmen. If motives of philanthropy were as strong as the instinct for "making money," the occasion for this remark would not long exist.

You will already have observed that the *diagnostic* symptoms are, retraction of the bowels, with a hard and sometimes knotty feel, without tenderness; paroxysms of pain; a cool skin and unexcited pulse. In addition to this, the history and circumstances of the case will naturally suggest the nature of the disease. If the patient is engaged in the manufacture of lead, or follows the occupation of a painter or glazier, or is otherwise brought in contact with the poison, and has the symptoms just

described, we would be justified in concluding that it was a case of lead colic.

The *prognosis*, as a general thing, may be considered as favorable. In a large majority of cases, when the cause is removed, the system will be able, without the assistance of further medicine, to recover. But a proper course of treatment will certainly shorten the disease in its course, and save the patient from a vast amount of suffering.

In regard to the *anatomical* developments little can be said, as pathological researches have not thrown much light on the subject. The bowels, and especially the colon, are often found almost closed up by the muscular contraction, though they exhibit no traces of local inflammation. The nervous system has been carefully examined, and in some cases the brain and spinal marrow have been found seriously involved, while in others they exhibit no traces of disease. But since we find cases of local paralysis, depending on the disease, it is reasonable to suppose that the poison acts on the nervous system.

In the *treatment* of this disease, the indications are to mitigate the immediate sufferings of the patient, and eliminate from the system the poison that produced the difficulty. The remedy which I am about to recommend for this purpose, was at first used empirically, like nearly all others. But the theory of its operation is exceedingly plausible, and its action, so far as my experience goes, fully sustains the theory. And I think that a careful analysis of its operation and effects will recommend it to any physician, and especially to the chemist, as admirably adapted to fulfill the indications.

We have, then, in our Pharmacopœia, a remedy called *White Liquid Physic*, the formula of which is as follows:

| | |
|--------------------|-------------|
| R Sulph. Magnesia, | ℥ xij. |
| Nit. Pottass, | ℥ ss. |
| Sulph. Acid, | ℥ j. |
| Boiling water, | qt. j. Mix. |

This prescription is administered with a view to neutralize the poison, and act as a purgative. Admitting that the system is poisoned by the absorption of lead, you will perceive, on a moment's reflection, the operation of this remedy. It contains an

excess of free sulphuric acid, which unites with the lead, and forms the sulphate of lead—a harmless and insoluble salt. If it be asked how the sulphuric acid can reach the lead, the answer is perfectly simple and philosophical. For if it is reasonable to suppose that the dry lead is absorbed into the system and circulates in the fluids of the body, or remains stationary in certain parts, it is even more reasonable to suppose that the liquid antidote may be absorbed and circulate in the same way, and thus reach and combine with the lead in an inert compound. It is generally admitted by the profession, that other medicines are absorbed into the circulation when taken into the stomach, or otherwise brought into contact with the system. So it is with this. The sulphuric acid is absorbed, and, being carried through all the ramifications of the circulating system, sooner or later comes in contact with the lead, in whatever form it exists, whether as the carbonate, acetate, or any of the oxides, and, having a stronger affinity for that metal than any of the acids with which it may be combined, unites with it to form the inert sulphate, which can be thrown off at leisure.

This remedy should be given in tablespoonful doses every few hours, until a full and free action of the bowels is produced. The sulphate of magnesia, which it contains, will act as a cathartic, removing effete matter. After a thorough evacuation is obtained, the medicine should be continued in smaller doses, to keep up a gentle action of the bowels, and give time for a thorough absorption of the acid.

If it should be necessary to aid the cathartic action, you may resort to the use of liberal lavements with a tube and pump. By this means you will secure an evacuation of the lower bowels, and thus give the contents of the upper portion of the intestines room to settle down. The common stomach pump, which you will find in most apothecary shops, will answer every purpose. The injection, in this case, should be of a cathartic character, instead of simple water. I have used our anti-bilious physic, in double doses, and usually with good effect. Castor oil, turpentine and molasses may also be used. A weak solution of tobacco—say a drachm to a pint of water, and one-half at a time—is another remedy; but you should be very cautious in administering this

article, as it often produces the most alarming symptoms—nausea, cold sweat and extreme prostration.

When the sufferings are very severe, it is important to relieve, as much as possible, the urgent symptoms. For this purpose, I would recommend a preparation of morphine and assafoetida, which is an excellent anti-spasmodic. You may also apply hot fomentations over the abdomen. You cannot expect the cathartics, or any remedy, to give immediate relief. The cure must be effected gradually, and you should therefore palliate, as much as possible, the sufferings of the patient, while the main curative remedies are operating for the removal of the cause of the disease.

When I have found it desirable to mitigate the pain in the small of the back, I have been in the habit of applying a cup to the tender spot, with decided benefit.

Since we find in this disease palpable derangement of all the secretions, it is of the highest importance to induce free perspiration. By this means the secretory organs will be opened, a large amount of matter, embarrassing to the system, and productive of injury, will be thrown off, and patients rendered more calm and easy. If the morphine and assafoetida do not act in this way, to the extent desired, you may administer our sudorific tincture in conjunction with some mild diaphoretic tea. In this connection I will mention another article, which may be used to fulfill the above indication, and which also has a high reputation as a curative remedy. It is the *glechoma hederacea*, commonly called *ground ivy*, or *Gill-over-the-ground*. I have been told, by a number of painters of considerable intelligence, who were subject to lead colic, that they have used the article with complete success, both in warding off the disease in its early encroachments, and curing it when fully developed. It is a modest little plant, found in almost all the woods and bottom lands of the West, and is given in decoction.

Alum has been recommended, as a curative measure, by some of the highest authorities. Dr. Eberle and Dr. Wood have both used it with prompt success, in cases which “had resisted mercurial treatment.” And yet Dr. Wood calls in question its *modus operandi* on the cause of the disease, without giving, as you will

observe, any substantial reason for so doing. Whereas, the fact is well known that the sulphuric acid, contained in alum, has a stronger affinity for lead than it has for alumina, and it requires something more than Dr. Wood's mere dictum to set aside the theory that this acid can "follow the salt of lead in its course through the system, and change it, wherever overtaken, into the sulphate."

A few words in regard to prevention. It is as much the duty of the physician to prevent disease, when he can, as to cure it. You should caution your patients not to allow lead to come in contact with the skin. And indeed you will often see painters, and other workmen, who are prudent, using the precaution to slip on a suit of over-alls, protect the hands with gloves, and bathe every night in greatly diluted sulphuric acid. They should especially wash their faces and hands two or three times a day, when at work, and also be careful, when working in rooms, to have a free circulation of air. It is probable that the turpentine, with which the lead is mixed, renders it more easily absorbed. People should, therefore, be warned against going into or living in houses newly painted. I have, in a number of instances, been called to see whole families, who were suffering from nervous diseases occasioned by sleeping in such houses. The symptoms, in such cases, are, usually, nervous excitement, pain in the back and head, with slight nervous fever, and some uneasiness at the stomach. Removal from freshly painted rooms, if possible, thorough ventilation at all events, attention to the diet, and mild evacuants, giving the preference to lavements, and proper diaphoretics, will generally be all the measures necessary in such cases.

LECTURE XXXII.

OBSTRUCTION OF THE BOWELS, ETC.

OBSTRUCTION OF THE BOWELS. *General Remarks—Symptoms—Causes—Treatment—Concluding Remarks.* CONSTIPATION : *General Remarks—Symptoms—Causes—Treatment—Case stated—Diet—Treatment of obstinate Cases.*

In connection with the subject of colic, I desire to detain you a short time in making a few remarks on a subject allied in some respects to those we have just been considering. *Obstruction of the bowels* often results from other causes than those connected with colic, and it is to these difficulties I desire to call your attention at this time.

Those cases resulting from an impacted condition of the colon, generally come on slowly, and without manifesting any particular symptoms for some time. The extent to which the bowels sometimes become impacted is almost incredible, and is accompanied of course with loss of action in the bowels, and with more or less of dyspeptic symptoms. In some cases, it is said, individuals have gone for months without having a passage. In cases of impacted colon, when measures, such as injections, have been taken to procure a passage, the entire contents of the bowel below the obstruction may be brought away without affording relief.

The symptoms that usually accompany these cases are, more or less local pain; the tongue generally furred, being covered with a white coat; a bad taste in the mouth; a feeling of general debility, and the skin dry, though without any febrile symptoms as shown by the action of the heart. The stomach also, sooner or later, sympathises, and becomes irritable, and sometimes there

is vomiting of bilious matter. It is said that in some cases stercoraceous matter has been discharged in this way, where there was obstruction merely from accumulation. If the accumulation is great, more or less distension of the abdomen will be observed, and always upon examination a feeling of irregularity will be discovered in the region of the colon, and often very sensible at some particular spot. This I have seen in a number of cases; in some instances the hardened and impacted accumulations could be distinctly felt in the right groin, at or near the head of the colon; while in other instances it was found equally distinct in the opposite side, at the other end of the large bowel. These cases, however, exhibited symptoms of inflammatory action, produced evidently by the accumulations, since the symptoms subsided entirely upon their removal. Associated with the general symptoms of fever, was a sensible pain, and great tenderness upon pressure at the point of the accumulation. Generally, in cases of obstruction in the colon, unless inflammation is excited, there is but little general disturbance, nor does the stomach become greatly affected, except with the less marked symptoms of indigestion. Cases are related in the journals and books, of individuals who have had but one or two evacuations from the bowels in a year or longer, and that, too, without apparently suffering materially in health or comfort.

Permanent obstruction of the bowels may result from tumors originating in the mucous or muscular coat, thereby preventing altogether, or in part, the free passage of their contents. This condition of things will generally be manifest by the gradual manner of its occurrence, and from the general and constitutional symptoms which such a state of the system would naturally excite. Of this character, cancer is supposed to be the most common, and when this is found to be the nature of the case, it is of course hopeless and incurable.

But the most common cause of obstruction, except that which depends upon mere accumulations, and by far the most singular cause, is found in the invaginated condition of the bowels. This is called intussusception or invagination, and by some of the authorities, ileus. This is a mere introduction or falling in of one portion of the bowel into another. It usually takes place from

above downwards, but I believe cases are mentioned where the reverse has been found. It occasionally occurs in the progress of bilious colic, from the spasmodic action of the bowels usual to that disease. It is supposed to be possible that this invagination may occur in almost any portion of the bowels, but the usual point at which it is found is at the union of the small with the large intestines. The peculiar arrangement of the intestinal tube, at this particular point, affords a reasonable explanation for its greater frequency there than elsewhere. But I have myself observed it at the sigmoid flexure of the colon. An illustration of the particular manner in which intorsusception takes place is very well shown in a common complaint among children, which I have also frequently seen in adults, to wit: prolapsus ani. Here it will be observed is a natural fixed point, made by the sphincter muscles, at the lower extremity of the intestines, and, from the loose and relaxed condition of the bowels, together with more or less spasm of the muscular coat immediately above this point, the portion above the sphincter is forced through that opening, during defecation, and protrusion of the irritated bowel is the consequence. From the obstruction in the capillary vessels, caused by the stricture from the spasm at the invaginated point, gangreen and sloughing are very likely to follow. When this does occur, death is the usual and natural consequence, though a few cases have been observed, where adhesions had formed between the opposing surfaces of the intestines, thus invaginated, while the slough was thrown off and discharged from the bowel.

The stercoraceous vomiting has generally been considered the main diagnostic symptom of intorsusception of the bowel. But since it has been known to accompany cases of obstruction arising from other causes, it cannot be relied on with entire confidence. Yet it so rarely occurs from other causes of obstruction, and is so invariably connected with intorsusception, that its presence, as a general thing, is even more than *prima facie* evidence of this difficulty. It should not, however, be relied on exclusively, since other evidences, confirming this conclusion, can be easily recognized. When this symptom occurs in the progress or at any stage of bilious colic, it may be reasonably concluded that intorsusception has taken place. So also when it occurs suddenly, without any

previous indisposition, or when it follows the operation of a cathartic administered for an ordinary disease, and, at the same time, a fixed pain with a distinct tumefaction, and more or less tenderness at some point in the track of the colon, can be perceived, the existence of intussusception would be reasonably inferred.

The case reported by Dr. Bigelow, of Hon. Hugh S. Legare, then Attorney General of the United States, under the administration of Mr. Tyler, was a remarkable instance of obstruction from twisting of the bowels. This took place at the sigmoid flexure of the colon. The spasm of the bowel had partially drawn the sigmoid flexure into the right hypochondrium, and the bowel had become so twisted as to present a firm cord or neck to the twisted portion, and upon untwisting it, it was found that four turns had been made, or "two entire revolutions."

The most common *cause* of obstruction from an impacted condition of the colon, is sedentary habits, or long continued confinement, or it may depend upon inactivity of the bowels, growing out of indigestion or chronic affections of the liver. Obstruction may also be produced by solid concretions, such as gall stones, or by the long continued and daily use of calcareous substances, or by the frequent use of preparations of magnesia, taken for a long time as physic. Nuclei may be formed out of some solid substance accidentally swallowed, around which the secretions from the liver and other glands, tributary to intestinal accumulations, may form concretions, which will be gradually increased till obstruction to the bowels occurs.

The most common cause of obstruction, produced by invagination, I have no doubt, will be found connected either with a rheumatic or gouty condition of the system. The few cases of this description which have come under my observation, have all resulted from a sensible and sudden translation of rheumatic affections to the intestines. And I have little doubt, that, if intussusception had not suddenly occurred, the disorder would have resulted in bilious colic.

Treatment. In cases of obstruction of the bowel, from accumulations in the colon, the only indication presented, will be a free discharge from the bowels. This may, in some cases, be accomplished, to a satisfactory extent, by the use of a stimulating

and purgative injection. If this should not be adopted, or if tried and found unsuccessful, a free and speedy cathartic should be given. Our anti-bilious physic is well adapted to fulfill this indication; and it may be aided, when the bowels are found unusually torpid, by an injection of a double portion of the same powder, or, if preferred, four ounces of castor oil, a drachm of spirits of turpentine, and a sufficient quantity of warm water. This may be thrown far up the bowel by means of a gum tube and a stomach pump. If the bowels fail to respond to these several calls upon their dormant energies, you might then administer one grain of podophyllin and two of leptandrin, repeated every four hours, till their cathartic action is produced. These means, or such of them as the circumstances of the case seem to indicate, will rarely fail to afford relief.

In cases of obstruction of the bowels dependent on intromission, it will be worse than useless to attempt to force a passage with active cathartics; as in that case the action of the purgative only adds to the existing spasm, and greatly diminishes the chances of relief. The indication in these cases is not so much to procure an operation of the bowels, as to relax the spasm and to relieve the invaginated condition, when the natural peristaltic action of the bowels will generally be sufficient to secure their evacuation. This indication will generally be fulfilled by the use of large quantities of anti-spasmodic and cathartic lavements, thrown far up the bowels with the force pump and tube, and by the internal administration of mild, aromatic, anodyne anti-spasmodics and aperients, together with applications of fomentations to the abdomen, or the use of a large cup, such as a very large tumbler with the air exhausted by a lock of light burning cotton, or some other similar application, such as the exhausted receiver, applied immediately over the seat of the obstruction. This, by drawing up into the exhausted vessel, a large portion of the integuments, would tend to relieve the internal viscera of the superincumbent pressure, and thereby favor the internal expansion, and make more direct room for the invaginated bowel to be drawn out. It has been found in a number of cases to afford immediate relief. The injection should be composed of a solution of ten grains of the extract of hyoscyamus, an infusion of a drachm of assafoetida,

and a gill of castor oil, in a sufficient quantity of warm water to fill the bowel as full as it will hold. It should be repeated if it comes away. This measure is probably more reliable and more frequently successful than any heretofore used. There is no probability that fluids thus thrown up the bowel with whatever force, or however far short of the head of the colon, can pass the ileo-cæcal valve. But it is not only possible that the bowel below the obstruction may be so far distended, with a warm, soothing and anti-spasmodic fluid, as to draw down the head of the colon, and thus leave the invaginated portion, but it accords with experience and sound philosophy, and has been done in many cases. I have myself seen two well marked cases, resulting from translated rheumatic affections, in which stercoraceous vomiting had existed for a number of hours, very speedily relieved, and the patient finally restored by this measure. It should be accompanied or preceded, if the case is not an urgent one, especially when the stomach is very irritable, by small doses of our common neutralizing mixture, with a sinapism to the stomach, repeated every hour, till the irritation of the stomach is relieved. It may then be increased to an extent sufficient to correct acid secretions, and moderately and quietly increase the peristaltic movement of the bowels. It thus tends to divert and relieve the spasm, while, at the same time, it secures the constant fluidity of the contents of the bowel above the invaginated portion, and in this way keeps up a condition of the parts involved exceedingly favorable to relief.

Tobacco injections have been resorted to in this affection, but from all I can learn in relation to it, the practice has not won for itself that favor which its early advocates seemed to claim. It is a most potent remedy, and should be used with great care. I have never used it in this affection, but have seen it used in one or two other cases, in which it exerted a powerful influence, producing nausea and vomiting, accompanied with extreme prostration, a mere thread of a pulse, and a cold, clammy sweat; in each case the patients recovered from its effects. It is safe to make a decoction of a drachm in a pint of water, and use half of it at a time.

In cases attended with severe suffering, resulting from the

spasmodic action of the bowels, it may be necessary to administer pretty large doses of opium. The objection to the use of opium in cases of obstruction from torpor of the bowels or an impacted condition of the colon, does not exist in spasmodic cases. On the contrary, it is one of the best anti-spasmodics that can be given in such cases. Almost every practitioner has his favorite preparation of this drug. But its general influence on the system is, no doubt, nearly the same, whatever preparation may be used. In combination with other therapeutic agents, however, important indications may be fulfilled, which can not be by the simple remedy alone, without, in the least, impairing the specific action of the opium. Our diaphoretic powder is perhaps the best preparation in these cases, and should be given in ten grain doses every two hours, till the object is attained, or the specific effects of the opium are produced.

Many valuable lives doubtless have been saved by persevering efforts of the physician, and you should not abandon your patient, though disappointed in your expectations, in the administration of your favorite and most successful measures. If therefore, you have administered one after another of those remedies, which reason and experience alike suggested, till you have gone through with all your reliable measures; still, if the patient is not evidently *in articulo mortis*, you should not abandon the case as entirely hopeless. I have stood over patients, in many instances, when but few rays of hope were left to encourage to perseverance, and while the friends were almost disposed to censure me for the administration of medicine, and have, in such hopeless cases, so frequently been rewarded by seeing my patients revive and finally recover, that I cannot too earnestly impress upon your minds the importance of hopeful perseverance. After every thing else has been tried in vain, and there appears to be otherwise no hope, the abdomen might be opened, and the twisted or invaginated state of the bowels relieved. This has been successfully performed in a few instances, and, when the constitution is otherwise healthy and in good condition, I should have no hesitation in recommending the operation as not only practicable, but by no means to be omitted.

CONSTIPATION.

I propose, in the present lecture, to confine my observations to that habitual form of constipation which is dependent upon a want of that regular action of the bowels necessary to health, which is not connected with any other affection, and does not produce any special symptoms of active disease. This course is rendered proper, since we have already considered, or shall hereafter consider, the various affections in which constipation is a prominent symptom.

In prescribing for a case of this kind, it is necessary to take into consideration the habits of the individual, and the character of the evacuations. Only a small portion of what an individual, in health, takes into his stomach, if the requirements of the system are regarded, is destined to be evacuated by the bowels. The amount thus removed, is made up, in a great measure, of those effete and waste materials which every system, in a healthy condition, daily eliminates for the purpose of that constant change and removal necessary to perfect health. If, therefore, an individual takes but a moderate quantity of simple food, and it is ascertained, on particular inquiry, that his evacuations are of a healthy character and of proper consistency, though they should not be as frequent as might otherwise be necessary, it would not be best, in such a case, to interfere; as I have generally found the attendant circumstances show that there is sufficient elimination of waste material through the other emunctories of the system, the skin, kidneys and lungs, to admit of perfect health. I have witnessed cases of this kind in numerous instances, among adults, as well as children. I have often seen the healthiest and most robust children have evacuations only every other, or every third day, while the discharges from the bowels were not costive, and were otherwise of a healthy character. In such cases, the greater part of the food is appropriated, and leaves but a small amount to pass off with the effete matter eliminated from the glands about the bowels. It may thus be seen that the regular diurnal movement of the bowels, so essential to a perfect state of health in a majority of individuals, may be greatly varied without

impairing the healthy condition of the system. If the statements made by some of the authorities are reliable, the extent to which the systems of many individuals can tolerate costiveness, without any apparent evil effects, is truly astonishing. In recurring to my own experience, I can account for the apparent good health which such individuals enjoy, only on the theory of the vicarious or substituting action of other organs of the body. But, although the evidences of derangement are not immediately manifested to any great extent, in such cases, yet subsequent observation will generally show that the system will, sooner or later, suffer penalties usually proportioned to the extent of the violation of organic laws. Hence, it is no unfrequent occurrence, that systems thus disordered are afflicted with rheumatic or gouty disorders, or "blessed" with a succession of boils, or chronic ulcers, or other anomalous eruptions. Individuals who are having evacuations from the bowels only once in three or four days, or as many weeks, to say nothing of double and treble that number of *months*, as stated by some of the authorities, should be admonished that the habit is fraught with peril.

In this form of constipation, although it is unconnected with organic disease, and though no general acute symptoms either of functional disorder or nervous suffering are present, the system becomes so far deranged as to manifest an evident abnormal state in many of its functions. Thus a coated tongue and bitter taste in the mouth will generally be complained of. Sometimes there is nausea, and a sense of fulness in the stomach and bowels, with sour eructations, borbarigmi and vertigo, frequent turns of headache, foul breath, an offensive state of the other excretions, and often a strong urinous smell, and a dry, harsh state of the skin. If the bowels are not greatly distended with flatus, a hard, uneven condition, especially in the course of the colon, will be felt.

If the inconveniences of all these abnormal derangements, with the general contaminated state of the system which is sure to follow, were all the evils that grow out of a habit of long continued constipation, the reasons for the removal of the difficulty would not urge themselves so forcibly upon us. But where experience teaches us that this state of the system lays the foundation for more serious and formidable diseases, such as enteric febrile dis-

orders, hemorrhage of the lungs and bowels, hemorrhoidal affections, and stricture of the rectum, dyspepsia, apoplexy and epilepsy, and many other affections, it becomes a matter of no light consideration. Besides these diseases of the physical system, the moral and intellectual faculties are probably no less frequently disordered. Hence, melancholy and hypochondriasis, with an attendant metamorphosis of temper, and even mania, are common in this disease.

Constipation, like many other affections, appears sometimes to be hereditary, or, at least, is evidently constitutional in some families. But where this is the case, we generally find a substituting evacuation in the more copious secretions from other organs. It is most common to persons of sedentary habits, such as students, professional men, shoemakers, tailors and artisans, and it is a frequent attendant on sea-faring individuals, so that, though they may have a safe and prosperous voyage, yet they may have a "hard and troublesome *passage*." Conducive, also, to constipation or torpid bowels, is too great *refinement* in living, or the use of those articles of diet that contain a small amount of excrementitious matter, thereby not affording that stimulus to the bowels ordinarily required. It may also be produced by the free use of stimulating and astringent condiments and drinks, such as cinnamon, cloves and spices, and port and some other varieties of wines.

Another prolific source of evil, and, indirectly, a cause of habitual constipation, is the frequent use of purgatives, which many nervous and hypochondriacal persons are in the habit of taking, without reference to the ultimate influence they must have on the bowels, and without a thought that anything else but purgatives will answer their purpose. In fact, they seem to think it is only necessary to *eat and take physic*. Habitual constipation, I am well convinced, is produced, also, by the free use of calomel and other preparations of mercury, in the treatment of fevers and other diseases, as well as the domestic use of that drug, so often taken to obviate costiveness,—the very disease, perhaps, its use has created. By its over-stimulating influence on the liver, an indirect torpor is produced, and, as the secretion from that viscus is the only natural purgative of the bowels, when it is deficient,

the bowels, as a matter of course, become costive. Constipation is also a very frequent attendant upon pregnancy, being produced, in part, by the want of the accustomed exercise which that state usually requires, and, in part, by the mechanical impediment which the gravid uterus imposes upon the large bowels; to obviate which is sometimes a difficult matter, and not unfrequently one of great importance.

Treatment. That form of constipation which is generally met with, requires no *active* treatment; the use of the means which I will soon recommend will be all that is necessary to remove the difficulty. But we occasionally find cases that require the employment of tolerably active measures to remove the accumulations which this state of the system has produced in the large intestines, and here and there we find a case in which the most active measures, and a resort to all the adjuvant means which experience can suggest, are necessary. When a full cathartic action is required, few remedies, and none, according to my experience, will be found so well calculated to fulfill this indication, as our anti-bilious physic with equal quantities of cream of tartar. It has the advantage of being mild in its action, and quick and thorough in its operation. It will rarely disappoint the expectations of the physician in this respect. The two should be given in drachm doses, each, in half a tea-cupfull of cold sweetened water, and repeated in two or three hours if it does not operate. If, however, the case should prove more obstinate than was expected, its operation should be assisted by an injection. This should be made of castor oil, turpentine and molasses, or two drachms of the anti-bilious physic may be mixed in half a pint of warm water, and thrown far up the bowel with a force pump and tube. This course will rarely fail to afford the desired relief.

But now and then a very obstinate case occurs, in which such a degree of insensibility of the bowels exists that no ordinary measures will be sufficient to answer the purpose. I have, in a few cases of this kind, found two grain doses of podophyllin and four of leptandrin to produce most copious and bilious evacuations, in about six or eight hours, without the aid of injections. If its action did not begin to be felt, either on the stomach or bowels, in about four hours, it should be repeated in slightly increased

doses. The first effect of this medicine, in these large doses, is often a most copious emesis, which will rarely fail to be followed by a similar copious action of the bowels. This remedy will be indicated in any cases where the constipation is dependent on torpor of the liver. But where the constipation is not peculiarly obstinate, the remedy should be commenced in much less doses, say half a grain of the podophyllin and one grain of leptandrin, and repeated every three hours till the cathartic influence is realized. In this way it rarely fails to bring away free bilious stools. It has another advantage, also, in that its action both on the liver and bowels is more permanent, and torpor of those organs is much less likely to follow its action, than almost any other remedy I have ever used.

With these various measures properly employed, I do not hesitate to promise success more prompt and certain than can be expected from any other means that I have seen tried. I very well remember an interesting case in a neighboring town, which I was invited to see. It was that of a young physician of respectability; nearly all the physicians of the town, some four or five, were in consultation, but had given up the case as beyond the reach of remedies. Upon examining the patient, I found a full and distended state of the bowels, to which a large blister had been applied. The stomach had become very irritable, so that medicine had recently failed to remain on it. After the examination, I found it to be the opinion of all the gentlemen present, that it was useless to attempt any further measures. My views being sought, they were surprised upon being told that I thought the patient ought not to die, and they desired to know how it could be prevented. I suggested the course which I should pursue, if the patient were mine, and that course was adopted. A soft bread and milk poultice was applied to the blistered surface, and dessert-spoonful doses of a decoction of our compound neutralizing physic were administered every half hour, until the irritability of the stomach was relieved, and then followed by a full dose of the anti-bilious powder. By the next morning, the physic had operated, the patient was relieved, and finally recovered.

In cases of habitual constipation, where there is no evidence of any great accumulations in the bowels, it is not necessary to

resort to active cathartics. The indication then to be fulfilled, is to obviate the influences or remove the cause, producing the difficulty. The habits of patients should be attended to; they should be directed to take as much exercise in the open air as they can well endure. The directions I have heretofore given, when speaking of indigestion, equally apply to this form of disease.

But one of the most important points to be gained, is to induce habits of regularity, either by the use of suitable diet, simple lavements, or the administration of such gentle tonics and aperients as will overcome the torpor of the bowels. When the case presents no general indication for the use of tonics more than is manifest from the mere atony of the digestive organs, the demands of the case will frequently be answered by an appropriate diet, and attention to the cause of the disorder. Rye mush and molasses may be mentioned as efficient in keeping the bowels open. Bread made of unbolted flour will sometimes answer a similar purpose. The free use of fruit, when the patient can bear it, frequently has the same effect. The old fashioned rye and indian bread, if used as the main article of diet, of the bread kind, will rarely disappoint your expectations. It affords an amount of nutriment sufficient for the system, and will be as acceptable to the taste as any bread that can be used.

If the bowels cannot be kept open and properly regulated by attention to diet alone, the patient should be directed to take a lavement of cold water, or, if necessary, to begin with, molasses and warm water may be substituted, at a stated period, every day, in order to induce a *habit* of regularity at stool. This will often answer quite as good a purpose as *physic*, and is much to be preferred, in most respects, if practicable.

The necessity for the habit of regularity in these cases, is of too much importance to be slightly passed over, since experience teaches that regularity of the bowels is often as much under the influence of habit, as the return of hunger or any other demand of the system. Patients should therefore be directed, at a particular and stated time every day, to solicit a call for an evacuation from the bowels, whether there is any inclination or not, and the aid of the lavements will rarely fail to answer the purpose.

But when constipation is connected with hepatic obstruction or general debility, these simple hygienic measures will scarcely be sufficient, and resort to medicine becomes most generally imperative and necessary. Such cases will usually be benefited by using in combination moderate tonics and cholagogue aperients. There is perhaps no one remedy more beneficial in such cases than our common gin or Bone's bitters, with the addition of a small portion of podophyllum, administered in sufficient doses to produce one free evacuation a day. When thus prepared and given, you may expect, in a short time, to discover its action on the liver, by a change in the character of the evacuations, accompanied by general improvement. In those cases which will bear this stimulant, few if any other general remedies will be required. If there is a mere torpor of the bowels, without any particular inactivity of the liver, and especially if there are any objections to the use of the bitters, one or two *anti-dyspeptic pills may be given every night; this will generally procure one free evacuation every morning. Or the compound taraxacum pill may be used to fulfill this indication.

| | | |
|-------------------|---|----------------------|
| * R Ext. Gentian, | } | $\bar{a}\bar{a}$ ʒij |
| Ox. Bismuth, | | |
| Pulv. Aloes, | | |
| Colocynth, | | |
| Gamboge, | } | $\bar{a}\bar{a}$ ʒi |
| Cast. Soap, | | |
| Oil Cloves, ʒss | | |

Mix, form pills ordinary size. Dose 1 to 4.

LECTURE XXXIII.

CHOLERA MORBUS OR SPORADIC CHOLERA.

Introductory Remarks — Character — Symptoms — Cause — Predisposition — Anatomical Character — Diagnosis — Treatment.

In the consideration of this subject, I shall not include the Epidemic variety of the disease, nor Cholera Infantum, as the former will follow what I propose to say on the subject of Cholera Morbus, and the latter will be discussed separately.

There are few diseases more common during the summer months than Cholera Morbus, or as it is called by some modern authors, Sporadic Cholera.

The leading characteristics of this disease are vomiting and purging; while the character of the evacuations depends upon the cause of the disease, and the attendant circumstances of the case. In most cases the contents of the stomach and bowels will be discharged, and in severe cases the dejections, following the ordinary accumulations, will present a thin, dirty yellow color, and from that to an almost colorless liquid, having a slight milky, or flour-gruel appearance; while in some very severe cases I have witnessed the peculiar rice water evacuation, considered so characteristic of Asiatic cholera. But in less violent cases, after the contents proper of the bowels have been discharged, the dejections assume a more bilious appearance, and are not so copious, and are mixed with more or less slimy and albuminous matter.

In the more aggravated cases, little else is thrown from the stomach, after the first free emesis, than the fluids that are taken in, mixed with a glairy mucus. But in the less severe cases, the act of vomiting increases the biliary secretion, and changes the peristaltic movement of the duodenum, and bile is thrown off.

And in some cases, when over-action of the liver and an attendant accumulation of bile has taken place in the stomach, bilious matter will be thrown up from the beginning. This is not, however, in my experience, a common occurrence.

The vomiting and purging, in most cases, come on in paroxysms, occurring every ten or fifteen minutes; often simultaneous, but more commonly the vomiting takes place first, and immediately thereafter, there is a call for the stool. For a few moments the evacuations seem to give relief, and the patient lays back in bed exhausted and comparatively easy. Thus the case progresses, with alternations of ease, and paroxysms of vomiting and purging, until the patient becomes exhausted, the extremities become very cold, and there is generally an exudation of a cold, clammy perspiration from the surface, and severe cramping of the muscles. Finally, rice water discharges, with a general collapsed condition of the system, occur, and the patient sinks into a comatose condition, and dies from exhaustion of the vital forces, in a state of universal congestion.

Or, as is more commonly the case, the system rallies, the vomiting and purging become less frequent, the extremities become warm, and finally a reaction comes on, and the patient gradually recovers under a slight febrile excitement, which soon subsides and leaves him entirely relieved.

The vomiting and purging rarely commence suddenly, but are preceded by more or less uneasiness, sometimes with severe gripping pains through the bowels; and generally a great commotion is felt, with a sensation of fermentation, together with slight nausea, for some time previous to the full development of the disease. Often a sensation of fullness and a burning feeling in the stomach, precede an attack of cholera morbus.

When fully developed, few diseases are, for the time being, more distressing and severe; but in most cases it is a self-limited disease, subsiding spontaneously when the accumulations have been discharged. And even where the irritation is disposed to be persistent when left to itself, it will generally soon yield to appropriate remedies.

During the active symptoms of cholera morbus, it is very rare for the system to exhibit any general evidences of fever; though

the patient is often tortured with an insatiable thirst, the pulse being small and the surface of the body cool, especially that of the extremities, which are often extremely cold. But after the vomiting and purging have ceased, whether from a spontaneous decline, or from the aid of medicine, a moderate degree of febrile reaction usually occurs, and in some instances a high grade of fever supervenes, with a persistence and severity not common in such cases. In most instances, the fever is of but short duration, and leaves the patient only moderately debilitated, rapidly to recover. If irritating or drastic medicine has been administered during the active stage of the disease, or following its decline, the febrile reaction is more likely to be severe, and to continue for a much longer period, and may degenerate into a low grade of irritative fever, which, if improperly managed, may prove fatal.

However severe the attack, sporadic cholera, if properly treated, rarely proves fatal, and indeed, without any treatment, a large majority of cases will get well.

Causes. During an extensive practice of many years' duration, in a section of country where cholera morbus may be considered as one of the most common diseases, I have no recollection, and no impression has been left on my mind, of ever having met with a case of well defined cholera morbus, in which I was not enabled to trace the immediate exciting cause of the attack, to some article either of diet or drink taken into the stomach. I do not intend to include, in this remark, those cases of bilious vomiting that sometimes attend the early stage of bilious fever; nor those cases of masked intermittent fever that I have often seen, which show themselves in the form of vomiting and purging at the regular periods for the paroxysm to return; nor those cases of irritation of the stomach, produced by worms in children. I apply it simply to the ordinary cases of sporadic cholera so commonly seen during warm weather. There is no doubt, however, that many circumstances greatly modify the organic functions, and thereby produce an unusual predisposition to cholera morbus. The occurrence of warm weather, with its relaxing influence on its first approach, tends to derange the functions of the system, so that upon slight exciting causes, the disease may be developed.

This circumstance, in connection with the free use of green succulent vegetables as a diet, readily accounts for the frequent occurrence of cholera morbus, during the early part of summer. It is also quite common during early autumn, when fruits and melons are plenty; as they abound in saccharine elements, and thus furnish the materials for fermentation, and most persons are apt to partake of them to excess. There is no doubt, also, that the enervating influence of marsh malaria, occurring at this season of the year, affords an additional reason for the frequent occurrence of the disease. A sudden check of the perspiration, when only the ordinary food and drinks have been taken, may be occasionally the only apparent cause of the disease; but in this case the stomach will be found to contain imperfectly digested food that had been previously taken. Unfermented cider often gives rise to the disease; and persons unaccustomed to the use of stimulating drinks, as wine or other spirits, are liable to be attacked after too freely indulging in them. In short, all substances furnishing the elements for fermentation, occasionally produce an attack in a person whose system is predisposed to the disease.

In connection with predisposing causes may be mentioned family or hereditary predisposition. This we often meet with, and it should always be borne in mind when giving directions concerning articles of diet in such families. In short, any circumstance productive of a tendency to irritation in the gastro-intestinal mucous surfaces, may be considered as predisposing to cholera morbus; while any substances taken into the stomach, in this condition, which are not readily digested, may act as exciting causes, and develop the disease.

In the *anatomical* character of the disease there is but little of interest. The symptoms and history of the case point with great constancy to the existence of gastro-intestinal irritation; and it can scarcely be supposed that any other evidences of structural disease which might be discovered upon post mortem examination, would bear any special relation to the disease, but should rather be considered as accidental. Opportunities are so rarely offered for investigation into the morbid phenomena of cholera morbus, that little can, with any show of reason, be said on the

subject. The essential nature of the disease is, without doubt, an acute attack of gastro-intestinal irritation, produced by the direct irritating influence of various substances taken into a stomach already predisposed by the influence of season, thermometric changes, and other conditions of the atmosphere, or hereditary tendencies.

Diagnosis. But little difficulty will be found in recognizing cholera morbus. The peculiar rice water discharges and tendency to collapse, which are uniform attendants upon Asiatic cholera, together with its epidemic prevalence, will generally enable you to distinguish it from sporadic cholera. The existence of general febrile symptoms, and the general constitutional disturbance which precedes an attack of bilious fever, in which bilious vomiting and purging are present, will be sufficient to mark the distinction between bilious fever and cholera morbus or sporadic cholera.

The only disorders for which cholera morbus has much risk of being mistaken, are the effects of "certain mineral poisons." Says Professor Wood, "I have seen the operation of *calomel* in some instances so *exactly* like cholera morbus that the most experienced eye could scarcely have detected the difference. But in poisoning by *corrosive* substances, the vomiting generally precedes the purging by a considerable interval, the discharges are seldom so highly bilious, and the poison may often be detected in the evacuations."

Treatment. From what has been said it is evident that the two main indications are, to remove the cause of the disease, and to allay the irritation that has been caused by it.

If the case is seen before the accumulations have been removed, and the patient is nauseated and imperfectly discharging the contents of the stomach, the natural efforts of the system should be aided in more freely ejecting the offending materials. In many cases, all that will be required to accomplish this object, will be to have the patient drink freely of some warm diluent fluids; even drinking plentifully of warm water will sometimes answer the purpose. But if this is not found, or should be thought insufficient, a full draught of a decoction of boneset will rarely fail to answer the purpose. This is to be preferred in all cases where it will answer, as ordi-

nary emetics, however mild, must of necessity produce more or less irritation, and should not, therefore, be given, unless indispensable. If an emetic proper is determined upon, one that will operate the quickest, and with the least irritation, should be preferred. There is probably no one of this class of remedies that is more speedy, and that can be relied upon as producing less local irritation than an infusion of lobelia and eupatorium. After the emetic is administered, or in case it is not thought necessary, a large sinapism should be immediately applied over the stomach and extending upon the bowels; while teaspoonful doses of the compound neutralizing physic should be given every half hour; and the patient must be enjoined to remain very quiet, and to resist as much as possible the inclination to vomit. In the meantime, the patient should not be allowed to take more than one or two teaspoonfuls at a time, of any fluid into the stomach; this may be of ice-water, if it is at hand and suits the stomach, or of a weak infusion of spearmint, from which I have often seen very good effects. The neutralizing physic should be continued in the small doses before directed, every half hour, until the vomiting is checked, which, allow me to remark, will seldom be long delayed, for I have rarely seen a patient reject the second dose.

It is true that cases will occasionally be met with, in which, after the stomach is relieved of its burthen, so much sensitiveness and irritability will remain, that the very thought of medicine is repulsive, and its appearance will make the patient gag. In these cases I have found very small doses of morphine to answer an excellent purpose in quieting the nausea and arresting the excessive irritability of the stomach, and also in restraining the bowels. It should be given, however, merely as a local sedative, and not with a view to its general influence. From one-twentieth to one-sixteenth of a grain may be given and repeated every half hour for three or four times.

The morphine will be more likely to be beneficial in those cases connected with bilious vomiting, as then the action of the opiate in arresting the secretion of bile is an important indication. In many cases, where the constant regurgitation of bile into the stomach keeps up such an irritable condition of that organ as to render it difficult to retain medicine long enough to have any

effect, I have seen most prompt and satisfactory results from administering teaspoonfull doses of strong, clear coffee, repeated every few minutes.

I cannot, however, refrain from impressing upon your minds the confidence, that a long experience justifies me in reposing, in the effect of the sinapism to the stomach, and the small doses as directed of the neutralizing medicine, in allaying the irritation of the stomach; seldom having to resort to any other measures for that purpose, except in those cases where it is necessary first to administer an emetic.

When diarrhœa continues after the irritation of the stomach has been relieved, the neutralizing medicine should be continued, but in much larger doses, until its effect is seen in the evacuations, when it should be suspended. For this purpose it may be given to an adult in the dose of from half a fluid ounce to an ounce, and repeated every two hours.

During the active symptoms of cholera morbus, nothing should be taken into the stomach excepting what is absolutely necessary, and of that but little at a time. And even after the disease is relieved, the patient should be directed to use a very simple and mainly farinaceous diet for a number of days, lest the irritation be prolonged and the case degenerate into chronic disease.

If, however, the diarrhœa should persist, after the measures already suggested have been tried, without much evidence of local irritation, I have found the tinc. catechu and paregoric in equal parts, administered in teaspoonfull doses after each evacuation, to answer an excellent purpose.

But if the disease has produced a high grade of irritation, which shows an unwillingness to subside, after the urgent symptoms have been measurably relieved, the mustard poultice should be followed by the hot hop fomentations, and the patient directed to take small quantities of marsh mallows mucilage, and not to take anything else into the stomach, and the bowels should be restrained by the occasional administration of a starch and laudanum injection.

Or if the irritation should not seem inclined to subside under the influence of the appliances already suggested, a number of cups should be applied to the epigastrium, and they may be fol-

lowed by the fomentations. Or the croton oil may be rubbed over the stomach, which, when thus applied after cupping, will rarely fail to produce a full crop of fine pustules. The irritation referred to will be indicated by the redness of the tongue and great tenderness of the epigastrium.

Those cases of periodical cholera morbus, to which reference has been made, I have fully considered when speaking of the modifications of intermittent fever, and masked ague. They should be treated in every respect like the common form of cholera morbus till the intermission occurs, when, without reference to the previous symptoms, the anti-periodics should be given in liberal doses, with a view of preventing another paroxysm.

LECTURE XXXIV.

EPIDEMIC CHOLERA — ASIATIC CHOLERA — MALIGNANT CHOLERA — SPASMODIC CHOLERA — CHOLERA ASPHYXIA.

Introductory Remarks — History — Progress — Appearance in United States — Symptoms — Stages — First, Choleric Stage — Second, Positive Invasion — Third, Collapse — Symptoms of Each Stage — Reaction — Convalescence — Variations — Anomalies — Blood in Cholera — Rice-water Discharges — Anatomical Character — Causes — Predisposing — Exciting.

The great fatality by which this terrible scourge of the human family has hitherto been characterized, demands at the hands of the medical profession, a thorough investigation of the etiology and nature of the disease, and of the comparative results of the various methods of treatment, which have been employed in different places and under different circumstances. Indeed, we might better say, that where the profession have been so uniformly unsuccessful in treatment, where they have been so signally baffled in every effort they have made to arrest a disease or even to mitigate its violence, as they have in regard to this epidemic, there is no room for any sentiment except profound humility in view of the past, and an ardent desire to receive suggestions and duly weigh propositions from every quarter, with a hope of being prepared more successfully to cope with this fell destroyer, when next it shall appear in our midst. Though my experience in the treatment of this disease has not been as extensive as I could have desired, previous to being called upon to discuss its character and proper management, and though my field of observation has been more limited than those of many others,

yet I have made some observations, and am prepared to make a few suggestions, which, with some deference, I shall present to you before dismissing the subject. My views will not, of course, have as much weight, as if they were the result of long and extensive experience, yet I bespeak for them a candid and deliberate investigation, and if not consistent with ascertained facts, nor sustained by future observations, let them share the appropriate fate of errors.

My principal reliance, however, in the consideration of cholera, will be, upon information derived from the reports of others who have had experience in its treatment. And while none can boast success, in this respect, sufficient to justify a claim to exclusive orthodoxy, there will certainly be found a wide difference between the results of different modes of practice. These are before us, and constitute a common stock, upon which all may draw, and although the most successful system may not gain our exclusive confidence, yet the least successful will not be devoid of interest and instruction. The statistics of the latter may serve as admonitory warning; while the suggestions of the former may afford us starting points, from which we may now set out to make further progress, in preparing to grapple with this pestilence. The little that is known, of practical value, in regard to this formidable malady, justifies the opinion that much remains yet to discovered.

It will be proper to commence the consideration of epidemic cholera with a brief glance at its *history*. Although unknown in this country until 1832, it existed in Asia as early, certainly, as 1774, and probably earlier. It prevailed there at different times and places until 1817, when it broke out with terrible severity in Bengal, and committed great devastation in the British army, stationed in the North-eastern districts of India. From Bengal it spread in various directions, so that by successive advances, during the years 1818, 1819, and 1820, it appeared in all parts of the peninsula of Hindostan, traversed the Burman Empire, Siam, and the peninsula of Malacca, in the South-east, and extended to China and Chinese Tartary, in the North-east. Within the same time it also visited Ceylon, Sumatra, Borneo, the Phil-

lipine islands, and even the distant islands, Mauritius, and Bourbon.

Its progress to the North-west, beyond the boundary of India, was not at first as rapid, nor as steady as in other directions. It does not, indeed, appear to have passed the Indus until 1821, in which year, it made its appearance in Persia and on the Arabian shore of the Persian gulf. Ascending the Tigris and Euphrates, it was stayed by the approach of winter; but in the spring of 1822, broke out on the Eastern border of the desert which separates Syria from Mesopotamia. It did not, however, cross the desert until November, when it broke out in Aleppo. It again subsided during the winter, and reappeared in the spring of 1823, ravaging in the course of the summer the Syrian towns on the Mediterranean coast. In this year, also, having traversed the Persian empire, it broke out at Astrachan, a Russian city at the mouth of the Volga, and at other places on the shore of the Caspian sea.

Having now reached the North-western border of Asia, it made no farther progress in this direction until 1828, when it appeared at Orenburg, on the confines of Russia in Europe; but it still seemed to hesitate, oscillating as it were, until 1830, when it entered Europe, appeared on the shores of the Black sea, penetrated the centre of Russia, and guided by the channels of the Volga, the Don, and their tributaries, reached Moscow — where it prevailed during the winter, and in 1831 attacked St. Petersburg. During the last mentioned year, it extended also to Poland, Prussia, the German States, and Hamburg, on the western coast of Europe; crossed the North sea; appeared, in October, at Sunderland, on the North-eastern coast of England, and at Edinburg in Scotland, in January, 1832. Rapidly as the epidemic had extended during the previous year, its progress was still more rapid in 1832. In this year, it broke out in London and many other places in England, extended to France and Spain, crossed the Atlantic, and appeared, in June, first at Quebec, then at Montreal; and, pursuing the course of the St. Lawrence and the Lakes, reached the valley of the Mississippi.

But the mouth of the St. Lawrence was not the only avenue through which this invading foe gained access to our country.

It appeared at New York almost simultaneously with its attack on the Canadian cities. From New York it passed up the Hudson to Albany, and southwardly to the waters of the Delaware and Chesapeake, reaching Philadelphia on the 5th of July, and Baltimore within the same month. It appeared on an island off Charleston, South Carolina, in November; in February, 1833, broke out at Havana, in Cuba, and before the close of this year, had extended to Mexico.

Thus within the first year after its access to our shores, this epidemic spread over the greatest portion of North America. It subsided, especially in the Northern States, during the winter, but repeated its ravages during the spring and summer of 1833, and again, to some extent, in 1834. It did not, in its first visitation to our country, molest the settlements on our Pacific seaboard, but having reached the borders of the unbroken wilderness and almost untrodden plains, this messenger of terror seemed to regard its mission as closed for a time. And now like some monstrous bird of prey, satiated temporarily with the ravages of three summers, it spread its pinions, and soaring above the snow-clad summits of the Rocky mountains, and casting a contemptuous glance at the sparse population of Oregon and California, took its flight across the broad Pacific, and settled down upon its native soil.

During the rapid extension of the epidemic in a western direction, its influence was propagated also to the north and south of what might have been regarded the main track of its progress, but not so rapidly in Europe as in America. Thus, the disease reached New Orleans a year before it appeared in Sweden, and four years before it prevailed in Sicily. It did, however, overrun Arabia and Egypt in 1831, as if by a detachment marching due west from the Persian gulf. But the chief line of its progress, after leaving Asia, was through the centres of Asia and North America, and in this line, it traveled, as we have seen, with variable speed, but upon the whole, with remarkable rapidity, for, from the time of its appearance in Russia, in 1830, it required but two years to reach the Mississippi valley, notwithstanding the interruptions of winter, which always retarded its progress and generally arrested it. It did not, however, attack all the towns

and cities which lay in its course, but seemed to exercise a very capricious discrimination in selecting its points of attack. Generally, it is true, it seemed to prefer low, filthy, and densely populated districts, but sometimes places of this character were passed by, while the inhabitants of the most elevated, clean, and isolated dwellings were chosen as its victims; facts which completely subverted every hypothesis, and baffled all conjecture as to the circumstances calculated to induce an invasion of the malady.

The intensity of the morbid influence was by no means uniform. Where the disease prevailed in a district, one or more points, were generally selected in which the epidemic force appeared to be especially concentrated, while the inhabitants of the adjacent territory suffered from irregular, predatory visitations, as if from scouting parties detached from the main body.

The epidemic usually appeared the second and sometimes the third summer in places where it broke out during the first season of its prevalence; but in some instances towns which escaped at first and which began to be regarded as exempt from the disease, were attacked during the second or third year.

Such is a brief historical sketch of the first visitation of Asiatic cholera to Europe and America. Having in this manner encircled the entire globe, and ravaged almost every important district inhabited by man, it confined its operations for awhile to the East Indies, where it has appeared to be endemic, scarcely failing to prevail to some extent every year since 1817. In 1847, however, having, as we may suppose, recruited its exhausted forces by a truce of thirteen years—for I can scarcely divest it of the militant character—it again took up the line of march intent on foreign conquests; but not finding much new territory worth invading, it chose to pursue its former course, and triumph again on the field of its former victories.

Its progress, in this *second incursion*, has not varied, essentially, from that of the first, and although its violence has generally been less severe, its type and habits have been about the same. As it has advanced westward it has, as before, generally subsided in the east; so that, in its progress, it may be compared to a terrific storm, its approach foreshadowed by omens of calamity, its prevalence overspreading the land with gloom and devastation,

and its departure, in sullen grandeur, leaving to the mourning inhabitants the melancholy assurance, that others are now suffering what they have just endured.

Thus have Europe and America been visited a second time by this dreadful scourge. This country, indeed, has not yet been relieved entirely from the second invasion. During the last two summers, (1849 and 1850) it has revealed in nearly all our towns and cities, and in many rural districts, and has at last attacked the inhabitants of the Pacific coast. It is highly probable, that, during the approaching summer, its ravages will be to some extent repeated among us; at least it behooves us all to be, as far as possible, prepared for it.

From this brief sketch of its history, we may, I think, derive the following facts in regard to the *habits* of malignant cholera. *First*: that it is endemic in India, but occasionally becomes epidemic, radiating, so to speak, from that central point in every direction to greater or less distances. *Secondly*: that occasionally its tendency is more especially in a western course; and that when this is the case, its progress, though fitful and vacillating at times, is generally marked by increasing rapidity. *Thirdly*: that natural obstacles, such as deserts, mountains, and oceans, though they may temporarily check, can interpose no impassable barrier to its progress. *Fourthly*: that winter usually causes it to subside, except where the weather is mild, or where a kind of artificial summer is sustained, as in the cellar-like habitations of the peasantry in Russia. *Fifthly*: that, though it appears to prefer natural channels, such as the courses of rivers, or other public thoroughfares, in its advances; and though it usually selects low, filthy, and crowded localities as points of attack, yet in neither of these respects does it observe any uniform rule. *Finally*: that, its prevalence in any place seems to be dependent on the presence of some unseen influence not usually existing there, and capable, according to some law by which it is governed, of more intense concentration in particular localities than in others, in the immediate vicinity.

Let us now pass to the consideration of the *symptoms of epidemic cholera*, or in other words, to an inquiry into its private history and character. For the purpose of a more clear description, I shall

regard the disease as embracing three stages, and shall therefore present this branch of the subject under the following heads :

1. First, or premonitory stage,
2. Second, or active stage,
3. Third stage or collapse,
4. Reaction and convalescence.

1. *First or premonitory stage.* What are usually called the “premonitory symptoms” of Asiatic cholera, have reference, first, to the whole community, and, secondly, to single individuals. When the epidemic influence of this disease exists in any district with sufficient intensity to render an out-break of the pestilence probable, that influence will be felt by most of the inhabitants. This is evinced by the general prevalence of unnatural sensibility of the stomach and bowels, constituting a predisposition to disorder in those organs. Very slight causes—so slight, indeed, sometimes, as to be unobservable,—are sufficient to produce gastric disturbance, moderate diarrhoea, or it may be, slight dysentery. As the morbid influence becomes more intense, cases of active and protracted diarrhoea become more frequent, and exhibit a more or less decided resemblance to the active symptoms of cholera. The French writers, and some others, have applied the term *cholerine* to cases of this kind, to indicate an attack approximating, but not amounting to cholera. Symptoms of this kind may exist in a community for a longer or shorter period, and then gradually disappear without the development of a single case of malignant cholera. In this case the symptoms I have described, although indicating a strong predisposition to the disease, cannot with strict propriety be said to constitute a *stage of cholera*. Such a state of things may be regarded as a general *premonition* that the community, where it prevails, is threatened with a visitation of the malignant malady.

But where an individual, situated in or near a locality where cholera actually prevails, experiences the intestinal disturbance, he will seldom fail of having the disease, unless promptly relieved. Hence, under such circumstances, an attack of diarrhoea or “cholerine,” even though but slight, should be regarded as the premonitory, incipient, or first stage of cholera.

The *premonitory stage* varies much in different cases both in

the character and duration of the symptoms. These may be stated in general terms to be: gastric derangement, evinced by irregular appetite, fur on the tongue, and sometimes pain or fullness in the head and slight vertigo, and, in some instances, nausea and vomiting;—intestinal disorder, attended with diarrhœa, slight colic pains perhaps, the discharges becoming light-colored and thin, if not so at first, and each evacuation attended with a sensation of great debility;—nervous disorder, evinced by the cerebral symptoms already mentioned, and often by neuralgic pains and spasmodic twitchings of the muscles. In some cases there are slight febrile symptoms, but generally there is a great tendency to relaxation of the skin and perspiration. The urine and other glandular secretions are very scanty, and become more and more so—the alvine discharges may have been bilious at first, but soon lose that character, and assume a turbid, dirty-white appearance.

Such are the symptoms of a well marked premonitory stage. Very often many of these symptoms are wanting, a slight diarrhœa, with some uneasiness in the stomach and a feeling of languor, may be the only departures from ordinary health, previous to the commencement of the malignant disease. This stage may continue for a longer or shorter period, from an hour or two to several days; or it may be wanting altogether, and the active symptoms of cholera take the individual by surprise.

2. *Second, or active stage.* When the case commences with the symptoms above described, they may gradually increase in activity, and develop the malignant disease, without any definite point to distinguish the commencement of the second stage. Generally, however, these premonitory symptoms are suddenly changed into those of a more active and alarming character; and sometimes, as was before stated, the full force of the disease is suddenly experienced.

Almost all reports which have fallen under my notice concur in stating that, in a majority of cases, the active symptoms of an attack of cholera, or those which I shall describe as commencing the second stage, show themselves first between sunset and sunrise; and, according to my own observation they oftener occur after than before midnight. The active symptoms usually com-

mence with copious watery discharges from the bowels. Vomiting often sets in immediately, or soon follows, and cramping of the muscles is usually an early symptom. The vomiting and purging, when both symptoms have commenced, are apt to be simultaneous, very frequent, and attended with a sense of great oppression in the epigastrium, and of weakness and sinking away in the abdomen, and sometimes with severe spasmodic pains in the bowels. Where diarrhoea has not previously existed, the matter first discharged from the bowels usually consists of ordinary faecal substance. It may not be even thin, nor deficient in bile, but very soon the dejections assume the character of a turbid, light-colored fluid, resembling "rice water" in its appearance, and either odorless or having a faint, sickish smell. The quantity of this fluid is frequently enormous, and the calls for its discharge almost unceasing, though usually each evacuation is followed by a brief space of comparative relief. The vomiting at first, discharges the ordinary contents of the stomach, in many cases revealing the imprudence in diet which may have excited the attack—but afterwards the ejections consist of matter entirely similar to the anal discharges. Very little straining usually attends the evacuations either from the stomach or bowels, yet they are expelled with force, as if by spasmodic effort of the viscera themselves. The cramps usually commence in the muscles of the extremities, but soon extend to those of the abdomen and chest. The suffering produced by this symptom, in most cases, beggars description. The muscles, by the spasmodic contraction of their fibres, are drawn into hard knots with excruciating pain; this, after a minute or two, is followed by momentary relaxation, and then repeated; or different muscles may be attacked in succession, drawing the body and limbs into various distortions, and allowing the unfortunate sufferer not a moment's respite.

The pulse may be but little affected at first, but it rapidly sinks as the above symptoms continue, becoming frequent, feeble, fluttering, and finally, perhaps, imperceptible. The tongue is not usually much coated, but pale and moist; though there is great thirst and a sense of internal heat. The surface is covered with a copious perspiration, which increases as the case progresses; the skin begins early to assume a dusky hue, which finally deep-

ens into a bluish, leaden or violet color, especially on the face and extremities; it loses its elasticity, and becomes shriveled and sodden; so that when pinched into a fold it does not readily return to its natural position. The surface soon becomes cold, and there is an evident stagnation of the blood in the capillaries. The urinary and other glandular secretions are suppressed. The patient is exceedingly restless, complains of insupportable distress in the præcordia, and difficulty of obtaining a satisfactory inhalation of air. These symptoms may be more or less severe from the beginning, and their progress may vary in rapidity, but if not arrested they usually increase in severity, and within from two to twelve hours reduce the patient to a condition of extreme prostration, or what I shall designate as the third stage.

3. *Third, or cold stage—or stage of collapse.* The pulse is now nearly or quite imperceptible at the wrist, and but a slight palpitation of the heart can be recognized. If a vein is opened no blood will flow, or at most an ounce or two of tar-like blood can be squeezed from the orifice, which forms a very loose coagulum on standing. The features are livid and shrunk away, the eyes have settled back in their orbits, the conjunctivæ are dry, injected and glaring, and the whole countenance is often so much changed as scarcely to be recognized by intimate friends. The entire skin presents a dark leaden, or violet color, the hands and feet are shriveled, and have a sodden, doughy feel; the whole surface is cold, and covered with a clammy sweat; the voice is lost or very feeble; the breath scarcely warmer than the atmosphere, the respiration hurried and feeble, or else slow and sighing or almost imperceptible. The evacuations cease entirely in some cases, but if continued they pass involuntarily, and if there are still discharges from the mouth they come up in passive eructations, sometimes followed by hiccup. The cramps also sometimes subside, but more frequently continue to the last, or they return just before death,—and it is by no means uncommon to see the muscles in a state of firm contraction long after life is extinct.

There is usually some stupor towards the last. This may, indeed, be an earlier symptom, but in most cases the patient is capable of being aroused, and then he exhibits his usual intelligence and memory. Sometimes the mental powers continue

unobscured until about the period of decease, and after the capacity for emotion seems to be exhausted. The patient lies perfectly helpless, and though fully conscious of his condition, often manifests remarkable indifference to his family and friends, or even to his own fate.

In many cases, the patient having fallen into this stage of collapse, rapidly sinks into the arms of death. Sometimes, however, this stage will be prolonged by feeble efforts of the system to rally its energies into a reaction. The pulse may partially revive, and a slight warmth return to the surface, but these flattering symptoms generally subside very soon, and the patient again succumbs to the overwhelming influence of the disease. The clammy sweat breaks out afresh, the cramps again seize the muscles, the surface becomes cold, though the patient experiences a sense of excessive heat and thirst, dyspnœa comes on, a few gasping efforts at respiration are made and the patient expires.

The duration of this stage, also is variable, of course. Suffice it to say, that death sometimes occurs within three or four hours after the commencement of the active symptoms, or second stage, oftener at the end of eight or ten hours, and more frequently still after the lapse of a day or two.

4. *Reaction and convalescence.* A small proportion of cases, in which patients sink fully into the collapsed condition, recover, or even exhibit symptoms anything like vigorous reaction. But where this is the case, at any stage of the disease, there is a cessation of the discharges, and a return of heat to the surface; the color of the skin becomes more natural, the pulse is diminished in frequency but increased in force, the uneasiness and oppression gradually subside, and the patient falls into a quiet sleep. The secretions of the liver, the kidneys and other glands are restored, the patient on awaking is, perhaps, able to relish some very simple nourishment, and the reaction may now be regarded as established. In a majority of cases, in which reaction occurs at all, it takes place before the occurrence of the third stage, or collapse, and the efforts of the practitioner should always aim at producing it as early in the case as possible.

Reaction having been produced, the probabilities of recovery are, of course, very much increased. Still the case is, by no

means, divested of danger. There are two ways, especially, in which the patient may yet be destroyed: first, he may, from some slight imprudence in eating, exercise, or exposure, experience a relapse of the active symptoms of cholera, sink quickly in collapse and die. Such a result, is by no means uncommon, and the utmost circumspection should be enjoined in all these respects. Or, secondly, where the case has been very severe and the patient much reduced, a secondary fever may set in, characterized by low typhus symptoms, a hectic flush on the cheek, the eyes are suffused, the tongue is dry and red; the patient sinks into a drowsy stupor; sometimes there is subsultus tendinum and low muttering delirium; papillæ appear upon the face and body. Under these symptoms the patient sometimes sinks into a state of coma, and dies in a few hours; he may survive a week or more, and then sink, or possibly recover after a tedious confinement. Recoveries, under such circumstances, however, are exceptions to the general rule, especially where the original attack has been very severe and the stage of collapse protracted.

Convalescence from cholera is often uninterrupted by symptoms of general or local disease, and very rapid; the patient regaining his accustomed appetite and vigor in a few days. This is, however, more likely to be the case, where the disease is arrested early, at least before the commencement of the cold, or collapsed stage. In most cases, however, where the system has been severely handled by the disease, the patient is left in a condition of debility. He will complain of great weakness, of uneasiness and tenderness in the epigastrium and abdomen, of irregular appetite, and indigestion. His tongue will be dry and red, if not furred, the bowels irregular, the skin dry; in short, the case will present all the symptoms of gastro-intestinal irritation, from which, even under appropriate treatment, the patient may require weeks, or even months, to fully recover.

Variations from the ordinary course and symptoms of epidemic cholera frequently occur, and occasionally cases are encountered which appear to deserve the epithet of anomalous. Among the more frequent variations of symptoms may be mentioned the absence of vomiting altogether, and perhaps of nausea, also, until a very late period in the case. Less frequently, yet occasionally,

we meet with a case in which there is no diarrhœa, perhaps entire inactivity of the bowels, though in every other particular the character of cholera is clearly marked, and the patient sinks into the cold stage and dies. The cramps, too, are in some cases very mild, and in few cases entirely wanting. But the *anomalous* cases, to which I referred, are remarkable for the absence of all, or nearly all, the active symptoms of cholera. The patient is suddenly attacked with symptoms of congestion of the brain, or *coup de soleil*,—perhaps accompanied with obstinate convulsions. In these cases, occurring during the prevalence of cholera, and exhibiting the passive symptoms of this disease,—the relaxation of the tissues, the congestion of the capillaries, the cold perspiration, the asphyxia, and after death the presence, in some instances, of the light-colored fluid in the intestines, which would, in ordinary cases, have been discharged by diarrhœa and vomiting,—in cases of this kind, I say, we must suppose that the morbid cause has been sufficient to overwhelm the nervous system at once, so that the organs are incapable of the ordinary efforts to relieve the system. In other cases a similar train of phenomena are presented, except that there is little or no cerebral oppression, nor convulsions; the patient yielding passively to a debilitating influence, which evidently spends its force upon the nerves of organic life, and he seems, as it were to sweat to death, without either vomiting or purging.

It may be well to notice, in the next place, the *character of the blood* in cholera patients. The lancet is in such great favor with a portion of the medical profession, that you need not be surprised to read of its employment in any form of disease; and in cholera it has, by some practitioners, been made a prominent means of treatment. Although the abstraction of blood from the vessels can never have benefited the patient, yet it has subserved a valuable purpose in exhibiting the character of that fluid during the progress of the disease.

The *blood* obtained from patients in the stage of *collapse* is thick, viscid and very dark-colored, even when drawn from an artery. Indeed this is precisely the condition one would be led to anticipate from an observation of the prominent symptoms. The drain upon the system, by the copious discharges from the

mucous surface of the intestines and from the skin, could not fail to greatly inspissate the blood; while the manifest inefficiency of the respiratory function must, of course, leave the fluid unaërated and consequently black. It forms a very loose and brittle coagulum in standing—and the serum which is separated from the crassamentum is in very small proportion, and has a greater specific gravity and darker color than that of healthy blood. *Chemical analysis* discovers in the blood a great deficiency of water, a diminution in the proportion of fibrin, and of saline matter, and consequently an excessive proportion of red globules. In cases somewhat protracted, in which the secretion of urine was suppressed for some days, urea in appreciable amount has been detected in the blood.

The “rice-water” *evacuations* of cholera, have a decidedly alkaline reaction, and consist principally of the very elements found to be deficient in the blood. According to the analysis of Dr. O’Shaughnessey and others, the liquid portion of this fluid is composed of water, carbonate of soda, and the other saline ingredients deficient in the blood, while the solid portion is made up of albumen, cassein, and fragments of mucous epithelium, derived from the intestines; and the fluid is totally deficient in the peculiar principles of bile. In some cases where the diarrhœa and vomiting continue to a late period of the disease, the color of these discharges will become brown or even black, owing evidently to the escape of the coloring matter with the serum of the blood.

The *anatomical characters* of cholera depend, in a great degree, upon the duration of the case, and the stage in which the disease proves fatal. Where the course of the symptoms was very rapid and the patient died in the collapse, very little, if any morbid alterations will be found in any of the structures. The external appearance of the corpse will be strikingly peculiar—more changed, perhaps, from that of life, than are usually the victims of the most tedious forms of disease. The same leaden hue, and shrunken, shriveled appearance which characterizes the stage of collapse, is presented with little alteration after death. It is, also, a remarkable fact that subjects who have died in this stage, will not only be frequently found with firm contractions of the mus-

cles, as was before stated, but with palpable increase in the warmth of the surface, which will continue, perhaps, for one, two or more hours.

The appearances on dissection, following an ordinary case of cholera which has proved fatal in the cold stage, may be briefly stated. The veins are engorged with viscid, black, partially coagulated blood, while the arteries are empty, with the exception, it may be, of occasional clots in the aorta and left ventricle. Venous congestion is found in all parts of the system, as the brain and spinal cord, the glands, the mucous membranes, serous membranes, and even the spongy structure of the bones. The lungs, however, often appear to have escaped congestion, and the spleen is sometimes smaller and drier than in health. In consequence of this venous congestion, the small intestines are violet colored, or have a florid appearance on opening the abdomen — and the mucous membrane, throughout the alimentary track, is reddened and somewhat thickened. The peritoneum is dry and glossy, or else covered by a thin layer of viscid matter, causing opposing surfaces of the membrane to stick together, and the same is true of the pleura and other serous membranes. The cellular structure of the intestinal wall is sometimes slightly infiltrated with serum. The glands of Brunner and of Peyer are enlarged, and not unfrequently a vesicular eruption is observed through the extent of the small intestines, consisting of minute elevations of the transparent mucous epithelium, filled with a serous fluid, which escapes when the vesicle is punctured. The entire canal is usually distended with a light colored fluid identical with that of the characteristic evacuations, though its color is sometimes changed to dark red or brown, by an effusion of the coloring matter of the blood, and the evacuations sometimes present the same appearance before death. The mucous surface of the stomach and bowels is often more or less covered by a coat formed evidently by deposit of the flocculent substance which exists in the “rice-water” evacuations; and in the stomach a glairy mucus is sometimes found adhering, in some degree, to the surface. Little change in the texture of the mucous membrane can be detected. The liver and kidneys afford no evidence of disease, further than by participating in the universal venous

congestion. The gall-bladder is usually filled with bile, somewhat thickened, but not unhealthy. The bladder is empty and contracted down to the wall of the pelvis, and its mucous surface, together with that of the ureters and kidneys, often presents a layer of substance similar to that described as lining the bowels.

Where death results from fever or inflammation following an attack of cholera, the post mortem appearances are very different, and correspond with the location, extent and duration of the secondary lesion. There is, in this case, less general venous congestion, the blood is not generally so dark nor so nearly decomposed. The contents of the bowels are darker colored, containing bile and sometimes blood. The mucous membrane of the stomach and bowels is red, thickened and softened to a greater or less extent, presenting positive signs of inflammation, or at least a high grade of irritation. If the case has been protracted, ulceration of the mucous membrane will probably be observed. Inflammation of the liver, lungs, brain and spinal column are not unfrequent. Perhaps the most common evidences of serious local lesion are found in the brain and its meninges, and in the nervous ganglia and their investing membranes.

We come now to inquire into the *cause* of epidemic cholera. Various hypotheses have been suggested, some of them ingenious, others absurd, and all lacking that degree of evidence necessary to establish a claim to entire confidence. All must, however, agree that the specific cause of cholera is some invisible influence, which either does not ordinarily exist, or is only occasionally operative. A great effort has, for instance, been made to prove that the impregnation of the water with lime is the *cause* of cholera. The argument is based upon the fact that countries where the limestone formation occupies the surface, and where the water used by the inhabitants is more or less impregnated with that earth, have been more generally overrun by this pestilence, than those where primitive and sandstone formations, and consequently soft water, prevailed. But although this local influence may, and probably is a predisposing cause to the prevalence of cholera, yet some other influence must be assumed to account for its occurrence. Why has it not always prevailed in lime-

stone districts? And why, since it appearance, does it not continue among us, as our wells and streams are still impregnated with lime? and again, how does it happen that it does not entirely avoid those places where the water is soft, and limestone unknown, as is the case at Bangor, Maine, and other places which might be named, where cholera has occurred with great fatality?

What then is the subtle, intangible, invisible, and yet remarkably influential principle which constitutes the specific cause of cholera; a cause which, although its efficiency is often promoted by circumstances which predispose to or excite morbid action in the system, yet is capable, when concentrated, of producing cholera, without the aid of any apparent predisposing or exciting causes? After examining all the hypotheses which have fallen under my observation, such as those referring it to the influence of the planets, to the approach of comets, to meteoric changes or peculiar electric states of the atmosphere, to malaria, to atmospheric fungi, and to invisible animalculæ existing in the air—my mind is more strongly impressed with the last mentioned proposition than any other. The habits of the epidemic, its capricious movements, its apparent obedience to whimsical impulses, similar to those which govern the movements of swarms of visible insects or of flocks of birds, concentrating in masses in certain localities, while small detachments of erratic stragglers may be seen flying about at different distances from the main body, seem to favor this hypothesis. The objections to this theory, as mentioned by Prof. Wood, are “its utter want of proof,” and the “fact that the cause of cholera, whatever it may be, withstood the severity of the winter at Moscow.” I acknowledge there is the absence of demonstrative proof to sustain this hypothesis, and the same is true of every other theory of the cause of cholera; but I do not profess to adopt it as unquestionably true, but to be constrained to favor it, as being sustained by more probabilities than any other doctrine. The fact that the disease prevailed at Moscow during a Russian winter, has some force as an objection, but when we observe that the general tendency of cholera is to subside on the appearance of very cold weather, and that in the cell-like huts of the Russian peasantry, to which the disease ap-

pears to have been principally confined at that time, a high degree of temperature is constantly maintained during cold weather, the objection is well nigh removed. It may be further suggested that we are all familiar with the fact that many visible insects exist in a dormant state during winter, and make their appearance during intervals of mild weather, and in dwellings which are kept warm.

But as it has been already suggested, there are *predisposing* and *exciting* causes which favor the development of cholera, and doubtless serve, in many cases, to increase the violence of the symptoms. Whatever has a tendency to impair the general health, or to diminish the vital forces, may be regarded as a predisposing cause. Previous disease, old age, irregular, intemperate, and vicious habits, deficiency of food, confinement to vegetable diet, exposure to confined, damp and otherwise vitiated air, as where many persons are crowded together in prisons, ships, camps, &c., protracted depression of spirits from grief, fear or other emotions, any and all of these, with many other circumstances, calculated to reduce the constitutional stamina, may be regarded as predisposing causes of cholera. It may also be proper to remark here, that not only are persons in debilitated conditions, or with shattered constitutions, more liable to take the disease, but they are less likely to recover from its attack.

The *exciting causes* of cholera do not materially vary in character from those named as predisposing, except that their impression is more suddenly produced. Any circumstance or occurrence, calculated to derange suddenly the organic functions, may excite an attack of cholera in persons laboring under the specific cause. Hence, the sudden exposure of the person when warm to cold, or dampness, by checking perspiration and destroying the equilibrium of the circulation, is a frequent exciting cause. Unwholesome food or drinks, such as unripe fruit or indigestible vegetables, impure water, fermenting liquors, as cider, &c., or overloading the stomach with even wholesome food; the use of very cold drinks, as ice water; purgative or irritating medicines; immoderate exercise; sudden mental emotion, and many other things, may be named under this head.

LECTURE XXXV.

EPIDEMIC CHOLERA—CONTINUED.

Nature of Cholera—Primary Seat—Prognosis—Treatment of different Stages. Treatment of First Stage—Treatment of Second Stage—Treatment of Third Stage—Dr. Morrow's Treatment—Dr. Jordon's Report—Concluding Remarks.

It will not be necessary to spend much time in discussing the *nature* and *diagnosis* of Asiatic cholera. That it is not essentially an inflammation of the mucous membrane of the alimentary canal, as has been urged by some, is, to my mind, evident from two or three considerations. First—where the disease is arrested before the collapse, there are no symptoms of inflammation presented in many cases, but patients recover with great rapidity. Secondly—when the patient dies during the stage of collapse, the post mortem appearances are not such as usually follow inflammatory action. The congestion of the gastro-intestinal mucous membrane does not materially differ from that of all other structures in the body, and there are no more symptoms of inflammation in the alimentary canal than are found in the kidneys, bladder and skin. Thirdly—inflammation of the stomach and bowels, when produced by any other cause than that of cholera, is not attended with the peculiar discharges, cutaneous congestion, and seldom by the muscular spasms, characteristic of cholera. That there is a degree of gastro-intestinal irritation I do not deny—but this is not *the* disease; it is merely an attendant of it. Extensive irritation of the whole intestinal mucous surface may, and frequently does occur, without producing any symptoms resembling cholera.

The *primary morbid impression* appears to be made on the nervous centres of organic life, the cerebral centre being but

little affected in the beginning. This impression is probably produced by a poison, which, having gained access to the system, manifests a specific affinity for the sympathetic ganglia. The consequence is general organic enervation, and of course debility of the gastro-intestinal canal. This debility is attended with a degree of morbid excitability which predisposes the mucous and muscular coats to become irritated; and, conversely, an irritating influence acting directly on the mucous surface may constitute a predisposing or even an exciting cause of cholera, by its debilitating effect upon the splanchnic nerves. Then, when the full force of the poison is experienced in the nervous centres, an enervated and relaxed condition of the mucous membrane is the necessary consequence; and the watery and plastic portions of the blood are permitted to escape from the blood vessels, and hence the diarrhoea with rice water discharges. The influence of the poison is doubtless felt throughout the system at the same time, producing irritability of the cerebro-spinal nervous system, as evinced by the muscular spasms, and enfeebling the circulatory apparatus. The blood is probably in some measure vitiated by the direct influence of the poison on the heart, arteries and capillaries, and thus predisposed to decomposition, while the loss of the fibrin and serum, in the copious discharges, produces increased embarrassment in both the systemic and pulmonic circulation; and the consequence is, imperfect aëration of the blood, oppressed respiration, greatly diminished calorification; stagnation of blood in the capillaries; coldness of the surface; increased by evaporation of watery exudation from the relaxed skin; collapse is the consequence, and death results from asphyxia. All this may, and evidently does occur without any such structural lesion as is implied in the term *inflammation* or even a high grade of irritation. Should vigorous reaction be established, *cholera is at an end*, and the irritation and inflammation to which the tissues, and especially the stomach and bowels have been predisposed by the disease, may or may not follow as sequelæ.

In describing the general symptoms of this disease, I endeavored to make sufficient distinction between the different stages. It strikes me, however, that a few remarks may not be out of place here, touching the meaning of the word *collapse*, and the symptoms of

the stage to which it is applied. It is somewhat vaguely employed in this relation, and hence different significations have been attributed to it. Some appear to use it as implying an entire loss of pulse and of action in every part of the body; but such a condition would be death itself. Others apply the term, and, as I think, correctly, to a condition of the system in which the capillary circulation is almost entirely suspended, the surface cold, the nails purple, the skin dark colored, shriveled and inelastic, and the pulse exceedingly small, or absent at the wrist.

This disease is so peculiar in its symptoms and the circumstances under which it occurs, that its *diagnosis* can cause but little difficulty. There is, it is true, considerable resemblance between the symptoms of this disease and those presented by a severe case of *cholera morbus* or *sporadic cholera*,—as it is now frequently termed—and it is a question still debatable, whether malignant cholera is not the same disease as cholera morbus, differing from it only in the presence of an epidemic influence, which predisposes the whole community to the disorder, multiplies the number of cases and greatly increases the malignancy of the symptoms. To this last opinion I am decidedly inclined, for I have met with cases of sporadic cholera which differed from the epidemic disease only, in being isolated and in lacking the mental apathy and overwhelming severity of the general symptoms; but the character of the evacuations, the cramps, the color of the skin, the cold perspiration, the feeble pulse—in short all the symptoms of Asiatic cholera were present, and had the epidemic influence been prevalent, I should not have hesitated in pronouncing them, cases of that character, and would, I have no doubt, have lost them. As it was they yielded to treatment and recovered. As a general rule, then, and one sufficient for all practical purposes, the diagnosis of this malady may be based upon the prevalence, in the community, of the peculiar epidemic influence, producing a general feeling of nervous depression, and a tendency to gastro-intestinal disorders under very slight exciting causes; for whether cholera morbus is a distinct disease or not, occurring under such an influence, it will invariably assume the character, involve all the danger and demand the same treatment, as the malignant disease.

From what has been already said, the general *prognosis* of this

disease would be set down as unfavorable; such is undoubtedly the case where the disease is allowed to progress to the third stage. Very few patients ever rise from that state of physical prostration and mental apathy, characteristic of the stage of collapse. But in the second stage a large majority of cases yield to judicious treatment, and in the first or forming stage the disease has generally manifested a degree of tractability equal to, if not greater, than that of epidemics generally. Hence, the farther a case has progressed, other things being equal, the fewer are the chances of recovery. The manifestation of heroic courage, the possession of a good constitution, and a disposition of the system to respond to remedies, are favorable circumstances; while those of an opposite character are of course unfavorable.

Treatment. Where you have an opportunity to prescribe during the forming stage, your treatment may in most cases be quite simple. In many cases I have found our sudorific tincture, given in teaspoonful doses every hour, sufficient to arrest the diarrhoea in a very short time, where the patient would lie down and keep quiet. Where the symptoms were more urgent I have relied upon the following:

R Tincture of Opium,
 " Camphor,
 Essence of Peppermint, *āā*

Dose—One drachm every hour, until the diarrhoea is arrested.

This I have seldom known to fail. The patient should, however, by all means, lie down and keep perfectly still and composed. Indeed, I have no doubt, that the horizontal position, mental composure, and the avoidance of every thing calculated to disturb the stomach and bowels, would be sufficient without medicine to prevent a development of the disease in most cases, if resorted to in the choleric stage, unless there is an overloaded state of the alimentary canal. As a substitute for the tinctures just mentioned, the following powder may be given.

R Gum Opium, pulv.
 " Camphor, "
 " Kino, " *āā* gr. j
 Capsicum, " gr. $\frac{1}{4}$

This should be repeated at the end of the first hour, and then after every evacuation. A preparation which may be termed

spiced or *aromatic* brandy has been found very efficient also in arresting diarrhœa.

R Pulverized Cinnamon, Cloves, and Gum Guaiacum $\bar{a}\bar{a}$ ʒj.
Best French Brandy Oij.

Dose, two teaspoonsful every hour, as long as necessary. This may be used as a substitute for the prescriptions mentioned before, or may be alternated with either of them.

If there are crude indigestible matters in the stomach, they should be removed promptly by an emetic. For this purpose the acetous tincture of lobelia and sanguinaria, aided by a warm infusion of mustard or of that and cayenne pepper, can scarcely be substituted by a better prescription. The emetic should be immediately followed by a large dose of the compound neutralizing physic, say one gill of the infusion every hour, until the color of the medicine appears in the dejections. If there is active diarrhœa, the spiced brandy may be alternated with the doses of neutralizing medicine. After the operation of the cathartic, the discharges may be arrested, if necessary, by either of the preparations already named. Or, what will be sufficient in most cases, tincture of catechu, or kino and paregoric combined in equal parts, may be given in doses of two drachms after each discharge. Or, instead of the catechu, kino or any other astringent, I prefer the marsh rosemary, (*statice limoneum*,) if it can be obtained. This may be given in doses of two ounces alone or with a teaspoonful of paregoric, after every motion of the bowels.

Instead of the neutralizing physic, some of our practitioners have given the anti-bilious physic, with good results. If there is torpidity of the liver, as shown by the character of the discharges, small doses of podophyllin and leptandrin may be given, say pod. gr. $\frac{1}{4}$, lep. gr. $\frac{1}{2}$, and repeated once in three or four hours, until bilious evacuations are produced. But should there be severe diarrhœa, it will be best to check it at once with one of the preparations named for that purpose, without waiting for the cathartic to operate.

If the case has reached the *second stage*, your treatment will require to be characterized by much promptness and energy. Here, also, if there is nausea, and evidence of accumulations in the stomach, the emetic is indicated, and should be given, so as

to produce the most prompt and thorough action. The same articles mentioned in the first stage may answer the purpose, but I prefer a combination of common salt and cayenne pepper, prepared as follows :

| | |
|---------------------|-------|
| R Common Salt | 3j. |
| Pulverized Capsicum | 3j. |
| Boiling water | O ss. |

Dose, a wine glass every ten minutes, aided, if necessary, with mustard tea, until thorough emesis follows.

I have seen the most satisfactory results, in some cases, follow the use of this prescription ; the discharges from the bowels have stopped, cramps have ceased, and all untoward symptoms have terminated with the operation of the emetic. This, I am aware, is an off-hand prescription, but is none the worse for that, especially if successful.

After the emetic, if one is given, and if not, then as a first indication, *check the diarrhoea*. The patient must, by all means, be kept in bed, and as quiet as possible, and he should be instructed to resist the tendency to motion of the bowels, and if necessary, assisted in this by an attendant, pressing a thickly folded towel against the anus. Hot bricks should be put to the feet, and a strong sinapism placed over the entire abdomen. While these measures are being applied, the patient should take internally the sudorific tincture ; the tincture of opium, camphor and peppermint ; or the powder of opium, camphor, kino and capsicum. But whichever is given, the dose should be larger, and repeated at shorter intervals than directed in the first stage. If narcotism is apprehended, from the frequent repetition of doses containing opium, the aromatic brandy may be given alternately, which is, indeed, a highly judicious practice in most of these cases, as there is nearly always a tendency to sink rapidly into a state of prostration, which the spiced brandy may prevent.

While the foregoing treatment is being employed, stimulating applications should be made to the whole length of the spine, with a view of arresting the *spasms*. The tincture of cayenne may be applied to this region by brisk rubbing with the hand, or with flannel, and followed by a sinapism extending from the top of the neck to the coccyx. Dry heat and friction should, at the same

time, be applied to the whole surface, and especially to the extremities. Hot bricks, or irons, should be kept to the feet and hands, and bottles of hot water, or bags of hot sand or salt, should be placed along the limbs and body. As a stimulant application to the surface I have usually employed dry cayenne briskly rubbed upon the skin, and then dampened with cold water. This is the most prompt and unfailing method of producing reaction in the skin, that I have ever tried. Where a muscle is drawn into a knot, pressure and friction should be made upon it until the spasm yields. Much relief may be afforded to the patient in this way.

To *allay the nausea*, so generally present, the compound neutralizing physic, in teaspoonful doses of the infusion, every half hour, is of great value. Instead of this, the following prescription has been employed with excellent effect:

R Aqua Camph.

“ Mentha Sativa (spearmint.)

“ Mentha Piperita (peppermint) *āā* ʒj.

Paregoric Elixir ʒij.

Mix, and give ten or fifteen drops every 15 or 20 minutes.

To overcome the torpidity of the liver, so common in cholera, small doses of podophyllin and leptandrin, as directed in the forming stage, should be given. The administration of this medicine may be commenced as soon as it will lie on the stomach, and the dose repeated once in three hours, until the biliary secretion is aroused. Little good, however, will result from any efforts to reach the liver while the diarrhœa is continued.

Let it be borne in mind that, whatever may be the mode of treatment adopted, every effort must be vigorously made. Nothing is to be deferred to the next hour that can, with propriety, be done in the present, and no hope is to be entertained that the disease, having spent its force, will release its grasp. A vacillating or capricious resort to various remedies should be avoided. Some practitioners become so excited in treating cholera, that they fly from one remedy to another, without taking time fairly to test the efficacy of any. You should keep perfectly cool, and self-possessed—your own safety demands this—and having decided on your mode of treatment, follow it up with energy. If an agent known to be potent, fail at first, repeat it; if it fail again, repeat

it once more, and thus by dint of perseverance you will often finally secure the desired result.

If, under the foregoing and kindred measures, the collapse comes on, little can be done except to continue the treatment, with, if possible, increased activity. If the patient is already in the third stage when you are called, commence, and continue the application of the internal and external measures already described; and although the probabilities of cure are very much diminished at this stage, you may possibly be successful.

The course I have now described is that pursued by myself, and in view of the results, as compared with those obtained by other practitioners, I feel safe in recommending it to you. That it will save all your patients, I do not pretend to hope, but that it will, if vigorously carried out, relieve all cases which can be cured by any means hitherto employed by the profession. The formulæ employed have been derived from various sources, and several other measures might have been enumerated, which I have tried, and some of which have been earnestly recommended by others; but I have aimed to mention those only which have seemed to be efficient, in my practice, in meeting the indications for which they were prescribed. I will now present you with synopses of the modes of treatment recommended by certain practitioners, whose extensive experience and eminent success in the management of this dreadful malady, entitle their suggestions to much consideration.

I will read first, extracts from a Lecture delivered by the late Professor MORROW, in this Institute, and published in the *Eclectic Medical Journal*, Vol. I, p. 277.

“The treatment pursued in each individual case, was regulated by the condition of the patient at the time of being called. In a very large majority of the cases that came under my notice, the patients were affected with diarrhoea, great prostration of strength, nausea and vomiting, with slight spasms. In the early periods of such cases, the patient was directed to go to bed, if he or she had not already done so, and was directed to take freely of the neutralizing cordial preparation, composed of equal parts of rhubarb root pulverized, saleratus, and peppermint plant, powdered; one pint of boiling water being added to half an ounce of this com-

pound. After simmering it for half an hour, it was well sweetened with white sugar, and strained, and when nearly cold, two or three tablespoonsful of good French brandy were added, and the patient was directed to take this warm, every fifteen or twenty minutes, in doses of two tablespoonsful, in connection with a preparation, made by adding one ounce each of pulverized cinnamon, cloves and gum guaiacum, to one quart of good French brandy, in doses of from two teaspoonsful to a tablespoonful every twenty minutes, to an adult, placing immediately around the body of the patient, hot bottles of water, hot bricks or stones, and covering the patient well in bed with a suitable quantity of warm clothing. This course will soon produce a warm, copious perspiration, which should be continued for six or eight hours at least, and if the case is a severe one, a moderate moisture of the skin should be kept up for a longer period.

“This course usually puts an effectual quietus on the nausea, vomiting and diarrhoea.

“This plan of management is nearly positively certain of success, if properly carried out in every case, in the earlier stages of its progress, and, as a general rule, there is but little difficulty in carrying it into the desired extent of operation, in fulfillment of the great indications for which it is intended.

“In those cases, however, which were marked by strong spasms and violent vomiting and purging, from the commencement, and which had not already passed into the stage of collapse, or if this train of symptoms was present at the time of seeing the patient, whether the attack commenced with them or not, I usually commenced the treatment with an emetic of the following compound: Take of saturated acetous tincture of *sanguinaria canadensis*, of *lobelia inflata*, tinctured in the same manner, in vinegar, and spirituous tincture of *aralia spinosa*, (southern prickly ash,) equal parts, and give it in doses of from one to two tablespoonsful or more, mixed in a little warm water, or hot tea, sweetened, every ten minutes, till it vomits the patient freely five or six times. This, in all cases, seemed to exert a powerful controlling influence over the subsequent course of the symptoms of the numerous cases in which it was used. Perspiration was much more readily induced, and continued without the necessity of using

a course of measures so efficient as those first indicated, or rather under the same, less vigorously applied.

“A preparation composed of equal parts of the oils of peppermint, cloves, anise, and cajeput, with a quantity of alcohol, equal to one-half or a little more than one-half of this mixture of the oils, to cut them, and allow them to mix intimately, was found to possess a high degree of value in the treatment of severe cases of cholera. This, I understand, was a favorite remedy in the treatment of this disease, in 1832, and was extensively used by the late Dr. Anthony Hunn, a celebrated medical reformer, of Kentucky, and is still known by the name of ‘Hunn’s Life Drops,’ in some parts of the country. In several very severe cases, this compound manifested great controlling powers, in doses of from one teaspoonful to a tablespoonful every 15 or 20 minutes, mixed with half a glass full of hot brandy sling. In one case in which the patient was in violent spasms in all the flexor muscles of the body, with the thighs drawn up against the abdomen, and the legs against the thighs, the neck and head forward on the breast, with a violent state of contraction of the abdominal muscles, two teaspoonsful of this compound were given with apparently but little effect, but this was followed in ten minutes by a tablespoonful, which soon effected the desired relaxation, and relieved the patient. He described the influence as very powerful, and penetrating even to the extremities of his toes and fingers. This powerfully concentrated medical compound manifested very superior powers in those cases in which the patient was rapidly approaching the state of collapse, or even in the earlier periods of that stage, accompanied at the same time with obstinate nausea and vomiting, as well as profuse rice-water discharges from the bowels. In several cases, after the relief of the spasms, nausea and vomiting, an obstinate and moderately profuse diarrhoea still continued, one-half to a teaspoonful of this preparation was given with complete success.

“There were several cases of this complaint, in which, after vomiting, cramps, and pains were all relieved, the patient was annoyed with a frequent desire to have a discharge, but could only pass a little slimy mucus, similar to the discharges in dysen-

tery. From ten to fifteen drops were given every hour, with almost invariable success in cases of this kind.

“In one or two cases of collapse which were treated by me, I found the sudorific tincture a most invaluable medicine, given in doses of a teaspoonful every fifteen or twenty minutes, in a little hot catnip or peppermint tea. It quieted the deep seated nausea and distress, and restored the lost circulation with singular energy and promptitude.

“The application of blankets over the whole body, as hot as could be handled, often dipping them in boiling hot water, was found to exert a most beneficial influence. The rule adopted in reference to their use, was to wring them partially dry after immersing them in the water, and then apply them by wrapping them around the patient’s entire body, leaving the head and neck free, and covering him over with dry bed clothing, and allow them to remain usually fifteen or twenty minutes, when they should be taken off and new hot blankets applied as at first. Reaction and a copious perspiration generally took place in the course of an hour or two after commencing these applications, especially when aided by the use of proper internal stimulants, anti-spasmodics and sudorifics.

“The extract of *plantago cordata*, also manifested powers of no inconsiderable value, when given in the form of pills of two grains or more at a dose, and repeated in the course of an hour, in common cases not marked with symptoms of unusual severity, for the purpose of quieting the nausea and vomiting, and arresting the diarrhoea. The results which have been consequent on the course of practice above indicated, have been highly satisfactory.”

A vast amount of statistical evidence of the success attending Eclectic practice, in the management of cholera, might be derived from the reports of individual practitioners; but these may be found in our medical Journals, and it seems unnecessary to occupy your time by reading them here. Suffice it to say that, after making ample allowances for what is challenged, by some, as exaggerations,—a charge, however, which is as likely to be merited by old schoolmen as by Eclectics—there can be no reasonable doubt in the mind of the impartial inquirer, that success greatly

preponderates on the side of the anti-mercurial mode of treatment. There is, however, one report, which, coming from a public institution, in which the Eclectic practice was tested, and emanating officially from the hand of a responsible, public functionary, may be regarded as testimony to which no objection can be raised. This report, gentlemen, I propose to read; it may be found in the Eclectic Medical Journal, Vol. 1, N. S., p. 410.

“Report of Dr. J. H. JORDON, Attending Physician of the Cincinnati Cholera Hospital to the Board of Health.

“GENTLEMEN:—

I have the honor of submitting the following as a report of the Fourth Street Cholera Hospital of Cincinnati, for the time of my connection with that Institution—being from the 6th of June till the 18th of August—the period of its suspension:

| | |
|-----------------------------------------------------------------------|-----------|
| There were admitted as patients, from the 6th to the end of June..... | 100 |
| During the month of July..... | 139 |
| From the 1st to the 16th of August..... | 27 |
| | <hr/> 266 |

These may be classified as follows, so far as known:

| Nation. | No. Admitted. | Males. | Females. | No. Deaths. |
|---------------|---------------|--------|----------|-------------|
| Irish..... | 92 | 65 | 27 | 31 |
| German..... | 83 | 58 | 25 | 41 |
| American..... | 40 | 31 | 9 | 13 |
| English..... | 24 | 21 | 3 | 4 |
| French..... | 5 | 4 | 1 | 3 |
| Scotch..... | 4 | 4 | 0 | 0 |
| Colored..... | 4 | 3 | 1 | 2 |
| Italian..... | 1 | 1 | 0 | 0 |
| Welsh..... | 1 | 1 | 0 | 1 |
| Unknown..... | 12 | 12 | 0 | 5 |
| | <hr/> | <hr/> | <hr/> | <hr/> |
| Total..... | 266 | 200 | 66 | 100 |

“By estimating the aggregate mortality from *all causes*, and the relative proportion of deaths and cures, we have the following:

| | |
|---------------------------------|-----|
| Whole number of admissions..... | 266 |
| Whole number of deaths..... | 100 |
| Whole number cured..... | 166 |

“Showing a mortality in proportion to the number of admis-

sions, of 37.59 per cent., which for convenience may be styled *three-eighths* or $37\frac{1}{2}$ per cent. Such are the aggregate results, for which, however, other causes than cholera are, to a considerable extent, responsible.

“As this hospital was established expressly for the reception of cholera patients, and as much interest is felt in the result of the treatment of that disease, it is necessary to exhibit distinctly the mortality which may be fairly ascribed to cholera, and the ratio of mortality *among those who were treated for cholera* in this hospital. By doing this, we can ascertain the exact degree of success which has attended our efforts for the relief of that disease, and learn to estimate its probable mortality in future attacks.

“We must therefore estimate the number of those who cannot be regarded as cholera patients, which is as follows: Among the deaths, there were five who died of *narcotism* from drugs taken previous to admission; three who died of delirium tremens; five who died of nervous fever, (more properly speaking, perhaps, of *opium* fever;) and eight who died of ‘other diseases’—making twenty-one. These of course should not be reckoned in the account as cholera deaths. In addition to these, there were five others that were not strictly cholera cases—four of whom were cured, and one remitted to the Commercial Hospital—making in all twenty-six. Not reckoning these in the account, the mortality will be found a fraction less than 33 per cent. or 32.9. This, it will be seen, is but little more than one half as great a mortality as has been exhibited in the treatment of cholera this year in the hospitals of Paris, although attended by the most eminent men in the medical profession.

“But there is another fact which must be mentioned. Besides the foregoing twenty-six cases, there were thirty in *articulo mortis* when admitted, who died on an average in less than an hour.

“That there should be so large a proportion of the cases in *articulo mortis* when admitted, may excite some surprise—unless the statement be accompanied with an explanation. A number were brought to the hospital in this condition from steamboats immediately on their landing, having lain in a state of collapse

frequently for hours previous to their arrival at this port. Some were in this condition when found, by the ward committees and benevolent individuals who interested themselves in behalf of the poor, and were brought here with the vain hope that they could be cured. But I am compelled to say, that a large proportion were cases that had been treated by physicians until past all hope of recovery, and then sent here *by those physicians*, or by their directions. As it could not be expected that such a measure could be of any service to the patients, and it could only serve to increase the apparent mortality of the hospital, I leave it to others to conjecture the motives of such a course.

“By subtracting this number also from the number of admissions and deaths—and it is but just to do so, as I cannot be held responsible for cases that were too far gone when received to admit of treatment—we are enabled to arrive at the true number of cholera cases treated, together with the exact number of deaths among the same, which are as follows:

Whole number of cholera patients treated,.....210

Whole number of deaths,..... 49

Discharged cured,.....161

“Comparative results: CURES, $76\frac{2}{3}$ per cent.; DEATHS, $23\frac{1}{3}$ per cent.

“In comparison with other hospitals of the kind, this would be regarded as a small mortality; and yet the greater portion of these deaths were due to the advanced stage of the disease in which the patient was received. If all had been removed to the hospital upon the first appearance of cholera symptoms, I am convinced the mortality would not have exceeded 10 per cent — probably much less.

“That this hospital was placed under the most unfavorable circumstances amidst the ravages of an unusually severe epidemic, is evinced by the fact that between an eighth and a ninth of all the patients admitted were actually dying when received, and lingered generally less than an hour; and that about an eighth of all that were cured, or TWENTY, were, when admitted, in that extreme and pulseless collapse, from which recoveries are rare. Under these unfavorable circumstances, it could not be expected that the results of the treatment would have been as successful in the hospital, during the severest period of the epidemic, as

they were, or should have been, during the milder form of the disease in the month of May, and under the more favorable circumstances of private practice; yet if we compare the true cholera mortality of the hospital, throughout the severest period of the epidemic, with the mortality of private practice as reported to the Board of Health during the month of May, the mortality of the hospital will be found scarcely equal to that of private practice.

“On the other hand, if we compare the mortality of cholera patients in the Cincinnati Hospital with the mortality of cholera hospitals in Paris, attended by the most learned and distinguished medical faculty in the world, we find the treatment in the Cincinnati Hospital has produced far the most favorable results—the ratio of mortality being less than one half as great as the mortality in Paris! (The cholera mortality of the Parisian hospitals, according to their reports in May, was 62 per cent., nearly three times as great as that of the Cincinnati Hospital.)

“When this hospital was established, it was expected that a mortality of 50 or 60 per cent. would characterize its reports; we have therefore great cause to rejoice at these unusual *results*, and it may not be amiss to inquire into the cause of so gratifying an issue to our labors.

“I have not the vanity to claim any peculiar talent, skill or any other merit, except a conscientious discharge of my duty. Whatever credit may be attached to these results, must be ascribed mainly to the principles of treatment which were adopted and faithfully carried out—principles which have stood the test of many years' experience in this country, and have never yet failed to demonstrate their superior value. These principles have been derived from the ECLECTIC or AMERICAN system of medicine,—a system peculiar to our own country, and widely distinguished in many respects from the old school or European system, which claims a foreign and antiquated origin. The Eclectic system, which excludes mercurials and general depletion by the lancet, as well as many other injurious agents, both in this and in all other diseases, recognizes a variety of stimulating, sudorific, diuretic, astringent, alkaline, antispasmodic, cholagogue, and emetic remedies, as appropriate in the treatment of cholera; and aims

to substitute safe, simple, and sanative agents for those which tend to create or aggravate disease by their own poisonous nature, or to produce permanent debility.

"It will not be expected, I presume, that I should give a detailed report of the treatment on the present occasion. To do so, would make a voluminous document, only appropriate to the pages of a medical journal. Should the epidemic threaten to visit our country again, I may select something from my experience and observations suitable for publication, for the benefit of the public, in regard to the prevention and cure of this disease. For the present I will only remark, that the course designated by the above general terms, was adopted and thoroughly carried out. I will add, however, that my experience in the hospital has rendered me still more averse to the use of pernicious drugs, and more in favor of a mild and simple practice. By far the worst cases to treat were those which had previously been drugged with opiates and mercurials. Even the state of pulseless collapse, unmodified by any medicine, was far less formidable to encounter than a condition less advanced in the disease, but laboring under the influence of mercury and opium.

"A majority, if not all the twenty who recovered from a state of collapse, had received no treatment of consequence previous to admission.

"As to the *cause* or *theory* of the disease, so much has already been said by medical writers, that it is needless to accumulate additional speculations. That the liver, however, is not the seat of the disease, nor its derangement the cause of it, either remote or proximate, my experience has abundantly satisfied me. Hence, the impropriety of giving calomel or harsh cholagogue medicines. Such remedies, in a milder form, may frequently be necessary in the convalescent stage, but in my opinion are never indicated until after the formidable symptoms of the disease are subdued. I conceive it one of the fatalest and most unpardonable mistakes to ascribe the disease to a derangement of the liver! Remove the cause and restore a healthy action of the system, by means of stimulants, sudorifics and alkalies, aided, if necessary, by external heat; allay urgent symptoms, if present, by the use of astringents, anti-spasmodics, and outward applications in the form of

sinapisms and rubefacients ; do this, and in nine cases out of ten the liver will take care of itself ; at least, such has been my experience.

“ The experience of this Hospital, I believe, fully proves that the cholera, if rightly treated, is not so formidable a disease as has generally been supposed. I must confess, however, that much depends upon promptness and early treatment. Guided by experience in this matter, I would, therefore, respectfully suggest to the Board of Health, that in any future invasion of cholera, the public safety requires that every family should be supplied with some safe and efficient cholera remedy, accompanied by brief directions as to diet and other things. By pursuing such a course the premonitory symptoms could be promptly met—but few cases would assume a formidable type, and the loss of life might be reduced to an inconsiderable amount, compared with the usual mortality of this disease. Any knowledge of this kind, in my possession, I shall be happy to furnish to the Board, at any time, if desired.

“ In conclusion, gentlemen, I must acknowledge my obligations to you for your hearty cöoperation—the efficient aid I received at your hands, and the promptness with which you responded to every call in behalf of the Hospital. Your laudable and efficient endeavors in behalf of the afflicted destitute during the late epidemic, at the sacrifice of time and private interests, not only at the Hospital, but on any and every occasion, richly entitle you to the gratitude of your fellow citizens. Such devotedness to duty, and the cause of suffering humanity, should not, and I trust will not, go unrewarded.

“ I am, gentlemen,

“ Your obedient servant,

“ J. HENRY JORDON, M. D.,

“ Resident Physician.

“ CINCINNATI, Aug. 18, 1849.”

And now, gentlemen, I have detained you long enough with this subject. I might spend hours in presenting the various theories, speculations and remedies, which have, from time to time, been submitted to the public, but it would be a sheer waste of time. I believe you are now in possession of all the really valu-

able knowledge which has as yet been attained, and more than this you do not desire—idle or visionary speculations are not what you seek from my lips, and to such I shall not ask you to listen. That much is yet to be learned, in reference to this modern scourge of the nations is most certain, and to you lies open the broad field of research. As intimated in the lecture of yesterday, it is highly probable that you will be called upon during the next summer, to measure arms with this giant disease. Your position will be that of danger and responsibility, but I trust you will exhibit that true courage which should characterize the enlightened and philanthropic physician, and that while you guard well your own health, and labor to save the lives and mitigate the sufferings of community, you will make such observations as will enable you to add to the common stock of professional knowledge, in regard to the nature and management of epidemic cholera.

LECTURE XXXVI.

MILK SICKNESS—SICK STOMACH.

Introductory remarks—Symptoms—Case of Milk Sickness—Treatment—Character—Cause—Nature—Treatment—Note—Other Cases—Quotation from Dr. Haynes—Dr. McCall's views—Cause—Treatment.

Before leaving that group of diseases involving the gastrointestinal mucous surfaces, I desire to call your attention this morning to the consideration of another disease in which those parts are more or less affected. It will no doubt be to you, as well as to a large majority of the profession, an entirely new disease. You will find it described in none of the authorities, and, so far as I have observed, not correctly described by any of the periodicals, except in one or two instances. It is usually called *milk sickness*, and has been styled, in some sections of the country, *sick stomach*, from the fact that this is the leading symptom of the disease, at nearly every stage of its progress. It is a peculiar disease, and I am quite convinced is *sui generis* in its character, essentially differing from any disease heretofore described in the books. It is considered by some physicians, who have come in contact with it, to be merely a modification of bilious fever. But after hearing a description of it and noting the striking dissimilarity between the symptoms of this disease and bilious fever, I think you will conclude with me that it is totally different from the latter, produced by a different cause, and, in short, is altogether a nondescript. During an extensive practice for upwards of twenty-four years, in malarial regions, where almost every modification of bilious fever has, from time to time, presented itself, I have never seen anything, aside from the few cases of the disease itself, to which I shall presently refer, that suggested even a suspicion of the existence of symptoms similar to those of

milk sickness. If it is a modification of bilious fever, I certainly would have seen some of its characteristic symptoms in some of the numerous cases of malarial disease that have come under my observation; or the books, in describing the latter, would have contained the leading train of symptoms, from which I could have inferred that milk sickness was allied, in some masked form, to bilious fever. But, as I have already said, you will not find it described in any of the books, and the only reference to it, that I have seen, has been in newspaper squibs, or in some remote and obscure periodical of the times. I have heard that an article upon the subject was written by Dr. Drake, some years since, but I never saw the article myself. My first experience, therefore, and in fact my only experience in the disease, was derived from witnessing a few cases many years ago. I had barely heard at that time some traditional accounts of it from persons who had lived in the vicinity where it had occurred, and, as it had not been known in the region of country to which my practice had been confined, I paid but little attention to those statements until called to see my first case.

Perhaps I cannot give you a better idea of the disease itself, than by detailing the history of this case, and some of the others I subsequently treated. The first case occurred in the winter of 1830. I was called about five o'clock in the morning to see a patient who had arrived the previous evening in a jumper, or off-hand sleigh, from Marion, Marion county, Ohio, about forty miles from Worthington, where I then resided. On arriving at the house where he put up, I learned that he had had an attack of the same disease early in the preceding fall, and this was the first time he had been able to leave home. His system was still enfeebled from the effects of the disease or the medicine, chiefly, as I believe, from the latter, and he, afterwards, became convinced of the same thing. But whichever was the case, and whether it was on account of either or not, his present attack, as he said, was far more violent than the first. He was opposed to calling a physician, for two reasons; one was, that he had no confidence in any one who had no experience in the treatment of the disease, and the other was, that the only physician in whom he had confidence, was the one who had treated him before, and who, as he thought, had

saved his life. That gentleman was then in Columbus, about nine miles south from where we were, and was expected through our place on the next day. The patient, therefore, concluded to bear his sufferings as well as he could until the physician should arrive. But the symptoms developed rapidly, and his sufferings became intolerable. I was therefore sent for, and I found the patient in the condition I will describe.

He was naturally a strong, healthy, vigorous man, by the name of Calvert, a tavern-keeper in Marion. At the time of his first attack, his physician, whether he considered the disease a peculiar one, or a modification of bilious fever, seemed to think the only indication was to produce an active cathartic action and the constitutional influence of mercury. Consequently he continued the use of calomel for several days, without any perceptible effect, and finally had recourse to rubbing the gums with corrosive sublimate, which resulted in producing two large depressions or holes in the tongue, which had healed over, and in which I could easily lay the end of my finger. The whole internal lamina of the lower jaw had sloughed off, leaving his teeth exposed down to the end of the roots, and yet this individual *supposed* the physician had saved his life. He had recovered his strength sufficiently to start for Columbus, and when about eight miles from Worthington, the previous evening, he felt the uneasiness in the stomach peculiar to the disease. This gradually increased into a positive nausea and burning sensation in the stomach, which, though it did not then produce emesis, completely prostrated him so that he fell back in his sleigh, and in that condition he reached the tavern. Soon after his arrival, he commenced vomiting and thus I found him on entering the room. As soon as he had vomited, he fell back on his pillow apparently easy and free from nausea. The appearance of the discharge was very peculiar, having a blueish green color and a perceptible acid odor. After lying apparently easy for ten or fifteen minutes, he began to complain again of the burning uneasiness in the stomach, became exceedingly restless, turning from side to side, and throwing his limbs about, seemingly in the greatest distress, until, at length he threw up precisely the same kind of fluid as on the former occasion, and then again fell back perfectly free from uneasiness or pain. I sat there exam-

ining his pulse, looking at his tongue, and inquiring into the history of the case and the nature of the symptoms, for an hour and a half before I was able to form an opinion on which to predicate a course of treatment. I found a small and rapid pulse, though not as rapid as we find in gastritis, with coolness of the extremities, no unnatural heat of the surface, nor much thirst. The tongue was thickly covered with a whitish coat, but there was no redness of the edges, and no great tenderness of the epigastrium upon pressure. The bowels were obstinately constipated; the urine was decidedly diminished in quantity, but not of that red color common to most inflammatory diseases. The skin was dry, but not husky as in inflammatory diseases of the stomach. In about ten or fifteen minutes the uneasiness in the stomach began to return; the burning sensation then increased until the same peculiar substance was thrown off, which he complained of as being exceedingly acrid and irritating, comparing it to the oil of vitriol. His countenance had a pale and anxious expression, though not of that sunken and exhausted appearance common to inflammation of mucous surfaces. The respiration was rather slower than natural, and a little irregular at times.

This patient recovered immediately upon the treatment which I shall presently describe, and was able to return home in three or four days after I first saw him; not venturing to prosecute his journey to Columbus. He was favorably impressed with my treatment, as contrasted with that he received in the first attack, and the more so as the last attack was much the severest. Of course he did not fail to herald the matter on his return, and the consequence was that I was sent for in a short time to see two patients in Delaware, a town in which there was a surplus of resident physicians. The disease was rife in that neighborhood. These two individuals, a mother and daughter, were taken simultaneously, and in each case the attack was brought on by eating some butter procured from the table lands lying west of Delaware, in the township of Radnor—a region which became so notorious for producing milk-sickness that the inhabitants of Delaware would never purchase the butter manufactured there at certain seasons of the year. The symptoms in these two cases were precisely the same as in the case already described, except the old lady

was more infirm, and her system less able to resist the encroachments of disease. She had been given up by the attendant physician to die, and, when I saw her, was almost pulseless, the extremities cold, and her strength so exhausted that she could not raise her head or articulate aloud. She was still vomiting, the eyes were sunken, and there was every appearance of a rapid and fatal result. The daughter was not so far gone. They had both been sick forty-eight hours, but the daughter still had considerable strength, and could satisfactorily describe her symptoms. The appetite, in all these cases, was entirely suspended.

The general character of this affection and the diagnostic symptoms of bilious fever render it by no means difficult to distinguish the two diseases. If the disease is not developed *immediately* after taking the article which causes it, the first symptoms will be lassitude and listlessness, somewhat characteristic of the forming stage of fever. But in any stage of the disease there are no morning remissions and evening exacerbations, no peculiar pains in the extremities and back, and no bilious vomiting as in those cases of fever in which vomiting is a prominent symptom. And, what is remarkable, very little febrile reaction supervenes upon relieving the urgent symptoms of the case. The pulse rises in fullness and diminishes in frequency. The only disease to which it bears any resemblance is inflammation of the mucous surface of the stomach, from which, however, it will always be distinguished by the peculiar appearance of the matter thrown up, and by the absence of febrile reaction, in this affection.

In view of these facts can any one, who is familiar with bilious fever, suppose for a moment that milk-sickness is a modification of that disease? If this is not sufficient to settle the question, there are other facts worthy of consideration, especially as connected with the cases of which I am speaking. It is well known that Delaware occupies a very healthy site, and is extremely free from the miasmatic fevers of the west. The surrounding country is hilly, and owing to the abundance of sulphur springs, and the salubrity of the place, it is a common resort, during the summer months, for persons wishing to recruit their health. Besides this, every case of milk-sickness that occurred in Delaware could be referred to an immediate known cause. In every case it was

ascertained that the patient had eaten, either the flesh of cows or cattle that had fed upon an unknown weed or vegetable, or upon the flesh of calves that had suckled cows afterwards affected with the trembles, or upon the milk, butter, or cheese of such cows. This fact not only helps to distinguish it from bilious fever, but throws some light upon its cause and will be referred to again.

It may be asked, what is the *nature* of the difficulty? I reply that, although I have never witnessed post-mortem examinations of patients who have died of this disease, yet all the symptoms indicated a low grade of irritation confined to the stomach and not amounting to inflammation. During the whole progress of the disease, I discovered no symptoms of inflammation, nor did the bowels become involved; on the contrary, they were always constipated. The discharges from the stomach were never bilious, but always acid and of an acrid character. I did not test the discharges in the cases to which I refer, but the descriptions given by the patients of their smell and taste were to this point. I regret now that I was not more careful in my investigations of their character, but in my early experience in the treatment of diseases, my main object was to cure them. It is, however, evident to my mind, that the matter thrown off from the stomach is a secretion or effusion flowing from a low kind of irritation which is set up by a specific local poison in the stomach. I am justified in taking this position by the symptoms developed during the progress of the disease. As soon as patients have vomited they lie down relieved and perfectly easy, and can tell almost the very moment when the accumulation commences again. I was particularly struck with this fact in my first case, and noticed it in every subsequent case. The patient gradually becomes worse and worse, until the system is exhausted and overcome, or reaction takes place, the influence of the poison is removed, and the patient recovers.

I believe no well settled or generally satisfactory explanation of the real cause of this disease has been offered. Every individual naturally tends to some kind of a conclusion, though it may not be sustained by facts. Some refer it to this plant and some to that. If I am not mistaken, the Legislature of Ohio

once offered a reward to any one who would discover the real cause of trembles in cattle. The effects produced by eating the flesh, milk, butter, &c., of cattle affected with the trembles, to which I before alluded, have led to the supposition that that disease in cattle and the milk-sickness were produced by one and the same cause. Now it is not unreasonable to suppose that trembles may be produced in cattle after eating the *Rhus Toxicodendron* or *poison ivy*, an article which is also sometimes administered in cases of paralysis for the purpose of producing muscular action, or arousing the nerves concerned in muscular action. It is possible that this is the plant which has caused all the mischief; another circumstance also points to the same conclusion. It is said that cattle confined to pastures of tame grass never have the trembles, and that the disease in the human system has never occurred from eating the flesh or milk of animals thus confined. But it occurs at particular seasons of the year, when the weather is extremely dry and green vegetation scarce, and is most common among cattle that graze in the woods, on the borders of prairie and table lands where this plant abounds and presents a tempting appearance to hungry cattle, on account of its peculiar verdancy. This, together with the history of the disease, so far as known, and the traditions prevalent in regions where it is most common, have led me to suppose that its origin may be found in the poisonous properties and effects of the *Rhus Toxicodendron*. I throw this out, however, merely as a suggestion, and not as a well attested fact, and I give it to you for what it is worth. Of course my opportunities for investigating the disease or its origin have been too limited to warrant any great degree of confidence in this theory.

It is, after all, perhaps, of equal, if not greater practical importance to select a successful *remedy* for the disease. On this point I am prepared to speak with more confidence, and I will now detail the course of treatment which I pursued in the few cases I was called to attend, remarking, at the same time, that I would not press it with undue earnestness, but merely recommend it as valuable until a better is discovered. The remedy which I found most efficient in neutralizing the acidity, and allaying the irritation of the stomach, was our neutralizing physic. I had no case

in which the patient vomited after its administration. Its composition seems to be precisely suited to the condition of the stomach, and should be given in tablespoonful doses every time the peculiar burning sensation is felt. In the first case I treated, I first gave, by way of experiment, a dose of the white liquid physic—a preparation of rochelle salts, nitrate of potass, and a small portion of muriatic acid, but this added only fuel to the fire, and the patient complained that it made him worse. I next gave him the neutralizing mixture. Its effects were immediately and plainly visible, and the patient remarked, with much satisfaction, that I had “hit the nail on the head that time.” Every time the burning sensation was felt, I gave him a spoonful of the medicine. This was the main reliance, although I thought it well enough to apply sinapisms to the stomach, and hot bricks to the feet, and I kept him still for a number of hours until the stomach was entirely relieved. Afterwards, to gratify his desire more than anything else, as he thought it strongly indicated, I gave him a cathartic. I have not forgotten the peculiar wording of his request—he wanted “a physic that would operate like a saw mill!” I gave him a large dose of our anti-bilious physic, and it fully answered his expectation. The next day he was able to be about the house, and on the next set out for home. The other cases which I mentioned, were treated in the same way, except that I did not give a cathartic to the old lady, on account of her exhausted condition. Finding it necessary, in her case, to recuperate the system as fast as possible, I bathed her surface with stimulating liniments, and gave her, at the same time, a little beef tea. I also directed the administrations of injections, which, by the way, is a very safe measure for evacuating the bowels when great irritation of the stomach exists, and I would recommend it under most circumstances. By these measures and fomentations she was in a short time soothed into quiet and refreshing sleep, the circulation returned, and, before noon of the next day, reaction had taken place, and she was in a comfortable condition. Of course it required longer time in her case, to repair the system, but the daughter was up and about the house in a short time in usual health.

I would further add, in regard to treatment, that you should

never allow the stomach, while irritated, to be overloaded, even with water, or your treatment will be thwarted. The diet should be of the mildest possible kind—mere rice-water or gruel—until all the symptoms have subsided.

In conclusion, I would remark that in all the cases which I have treated—amounting in all to eight or ten—there was a striking similarity in the symptoms, requiring but little modification in the treatment, and all recovered promptly. I do not wish to exaggerate the benefit of this mode of treatment, but I have thought it due to you, and to the world, to give my experience, being ready, at the same time, to adopt with alacrity any superior measure which future experience may develop. Every practitioner should take upon himself, not only for his own benefit but that of the profession generally, to communicate, through the periodicals, or otherwise, any peculiar features of disease that he may meet with, or any successful remedies he may discover.

[NOTE.—Since this lecture was delivered, in casually turning over a few numbers of the “Philadelphia Journal of the Medical and Physical Sciences,” for the year 1822, edited by Professor N. Chapman, I found in one of them descriptions of the milk sickness, by three different physicians. It seems these communications were first published in the “Western Quarterly Reporter,” at Cincinnati, and were quoted from that paper by the editor of the Philadelphia Journal. These communications, it will be seen, perfectly coincide, in their descriptions of the disease, with my own observations. I reproduce the shortest one, and will make a few extracts from others in relation to the *cause*, &c. The shorter article was written by a Doctor Haynes, of Dayton, Ohio, and is as follows:

“This disease prevails chiefly in the neighborhood of heavily timbered, level, and consequently rather wet oak land.

“Cattle, sheep and horses, which range in these tracts, are subject to a peculiar disease, known among the people by the name of the *trembles*, which they suppose to be produced by their eating of a plant, as those animals which range in the neighboring barrens or beech land, are free from the disease until they find their way into these low bottoms; and so well are the people acquainted with this fact, that if they see cattle that have been

accustomed to range in the barrens, enter these suspected ranges, they foretell the sickness of the calves, and of the family using the milk. Calves are seized with trembling and vomiting during, or soon after, sucking, and frequently die of the disease. The milk has the same effect upon dogs. Children drinking the milk, leave the table and vomit. Upon adults its effects seem to be less sudden, but eventually more severe. It seems somewhat singular that milch cows escape the disease, while their milk produces it in other animals. It seems as if the deleterious matter were eliminated from their systems through the lactiferous vessels.

“Beef and mutton produce the disease. Several instances have been related to me, in which beef and mutton killed in the neighborhood before mentioned, have sickened all who ate of them. Some who have had the disease, say they can instantly discover, by a peculiar taste, such beef or milk as will produce the sick stomach. Dogs eating the flesh of those animals which die of the trembles, as it is called, sicken and die with vomiting and that extreme debility characterized by trembling and inability to stand or walk.

“If cows are kept in pastures, and not suffered to run in the woods, their milk may be used with impunity. That there are difficulties in admitting the opinion that this disease is caused by some vegetable poison, and in proving it to be true without a direct experiment, is acknowledged; but taking into consideration the testimony that has been advanced, and the almost universal sentiment of the people who have experienced the disease, and have had it in their families, there appears to be much probability; and an opinion so general as this is among the people, ought not to be rejected without candid investigation.

“An attack of the sick stomach is preceded by universal debility, more particularly felt in the lower extremities; impaired appetite, nausea, occasional vomiting, and an offensive breath, so peculiar as to be instantly recognized by any one conversant with the disease. In some, these symptoms constitute the whole of the disease, and exist for several weeks. In others, they are followed, after some days' or weeks' continuance, by a more severe and general attack, characterized by great debility, sometimes irregular chills and flushings, a sense of great oppression about

the præcordia, anxiety, deep respiration, heat in the region of the stomach, compared by the patients to fire, boiling water, &c. ; thirst, nausea, and at longer or shorter intervals, according to the violence of the attack and to the period of the disease, violent retching and vomiting.

“ In the arterial system, the disease puts on a variety of aspects in different persons, and in different stages of the disease. In the same person changes take place not unfrequently in the space of a few hours. The heart beats with such violence in some cases, as to elevate the bed clothes, and to excite horror in the physician and bystanders, on laying the hand upon the patient’s breast. It seems to labor convulsively, and as though it were clogged in its motions by a superabundance of blood. The larger vessels partake of the heavy, throbbing and laborious motions of the heart. The blood forsakes the surface, especially that of the extremities, leaving it cold, and seems to rush to the larger internal vessels, engorging the viscera, and producing that oppression and anxiety about the præcordia, sighing in respiration, palpitation of the heart, &c. The patient feels nothing which he can strictly denominate pain ; but the sense of heat, the oppression, the palpitation of the heart, and the violent efforts to vomit, constitute an *extreme* degree of *distress*.

“ In other cases there is much less of this turmoil of the system. The patient, in the intervals of vomiting, lies in a stupid, listless condition, from which he is roused only by a returning fit of vomiting.

“ The state of the pulse varies with other symptoms. In the early stage of the disease, it is sometimes full and tense, at others full and soft. Later in the disease it is slow and weak, exhibiting little or no febrile action, except it be of suffocated, or at least, unequal excitement. The bowels are obstinately costive, and the stomach so irritable, that medicines and drinks are rejected soon after they are swallowed. In the early period of the disease some bile is discharged, but never, I believe, in great quantities. The matter ejected afterwards seems to be little else than the drinks, &c., taken in, mixed perhaps with a secretion from the stomach ; and in violent cases, a flaky substance, varying in color from a light brown to a deep black, is mixed with the fluids.”

The following extracts are taken from an article written by Dr. Asa Coleman. He thus describes the symptoms :

“The vomiting often returns every hour or two, during a whole week together, and the patient experiences some relief after each effort. During this stage of the disease, the strength is much prostrated; the patient complains of great distress and a burning sensation at the stomach; the bowels become obstinately costive; the thirst is frequently great; hot belchings and hickup are often troublesome; the tongue is slightly furred, and the breath has a peculiar, disagreeable smell, resembling that of a person under a mercurial course.”

The following extract gives the Doctor's views of the medical treatment. “In the first stages,” he says, “an occasional use of emetics, cathartics, and laxatives, with rest and the use of light, wholesome food, will generally clear the system from its effects in a few weeks. In the more active forms of the disease, the exhibition of medicine is often extremely difficult, owing to the great irritability of the stomach. Emetics are then absolutely hurtful, especially antimonials, because of the irritation they excite in the stomach. In some cases where there was much retching to vomit, without throwing much up, I have directed a strong infusion of chamomile flowers, or warm water, to clear the stomach of its foul contents (with great advantage.) Cathartics, especially of the saline kind, afford considerable relief, if the stomach will retain them sufficiently long to permit them to act on the bowels. It is generally necessary to assist their operation by the use of stimulating enemata, in order to overcome the obstinate costiveness. These remedies must be repeated daily during the continuance of the disease. Before resorting to the use of cathartics, however, I generally have recourse to some medicine for the purpose of allaying the irritability of the stomach, and to check the vomiting until the cathartic has time to operate. This is often difficult to accomplish. For this purpose I have found a solution of a few grains of carbonate of potass in water, very serviceable, when often repeated; sometimes I have added a few drops of tincture of opium. The sugar of lead is another remedy, that I have seen advantageously used to allay the vomiting, till the operation of a cathartic could be produced. The operation of a cathartic gen-

erally affords a considerable alleviation of the general symptoms ; a large blister over the stomach appears to be of much service ; bathing the feet in hot water, and applications of mustard to the feet and wrists, are usually resorted to. The general warm bath has been employed in some instances with advantage."

In regard to the cause and nature of the disease, the writer remarks : "There are some circumstances connected with the history of this disease, so peculiar as to make them quite interesting. It is now a generally received opinion in the parts of the country where it prevails, that it is produced by some peculiar poison of the vegetable kind, and that the human system is affected with the disease only in consequence of using food that has been under the influence of this poison, such as milk, butter, or the flesh of animals laboring under the effects of this disease. The idea of a disease so formidable, produced in this manner, may appear somewhat chimerical to some, but there are many circumstances that favor the conclusion, and leave little doubt in my mind of its being the fact.

"1st. That domestic animals become affected with this disease, and under certain circumstances only, and that they are not subject to it except in parts of the country where the human species are subject to it. That cattle become affected with the disease from eating some vegetable poison, is inferred from these circumstances ; cattle in pasture fields, where the ground has been cultivated, are not subject to it, it being only those that run at large in the woods and commons. I will state one of many instances that have fallen within my observation, in support of this opinion : A piece of woodland was enclosed as a sugar orchard, in which there was no water, either running or stagnant ; situation high and dry ; if an horse or ox were suffered to graze in this enclosure, for twelve or twenty-four hours, it would certainly become affected, and perhaps die in a day or two ; while cattle in a pasture field adjoining, have grazed the whole season without any symptoms of it. It may be inferred from circumstances like the above that it is not the effect of impure water. Many instances have been related to me by persons of credibility, of horses escaping from the stable and not remaining in the woods more than twelve or twenty-four hours, becoming so much affected as to die in a

day or two, having all the peculiar symptoms of this disease in brutes, and this often in the winter season, when the ground was covered with snow ; from which circumstance it is suspected to be a vine, or some plant not easily affected with the frost. The disease is most fatal among cattle and horses in the fall months, but they become affected with it at all seasons of the year, when turned to the woods.” * * * *

“2nd. That the milk, butter, beef, or the flesh of any animals, killed while laboring under this disease, will produce disease again in other animals, is proved by daily experience ; sucking calves, which have no food but the milk of an affected cow, will show the peculiar symptoms, and often die of the disease ; persons making use of the milk or butter, from the same cow, at the same time, will become affected.

“The milk given to domestic animals when the sucking calf shows symptoms of it, will produce the disease upon them, and this often without the cow’s appearing much affected by the disease, a milk cow seldom showing many symptoms of it when regularly milked ; the poison appearing to pass off principally by that secretion.

“I saw an instance of a whole family becoming sick with this disease, some of them in a few hours after dining upon a loin of veal, in which it was afterwards satisfactorily ascertained that the calf labored under the disease at the time it was butchered, being sold in the market by an unprincipled person.” * * * *

“Mr. Thomas Hill, a respectable farmer, living near the southwest branch of the Miami river, informed me that having an ox die of this disease in his yard, and neglecting to remove it, his hogs, about seventy in number, devoured the carcass, and out of the above number about forty died in the course of twenty-four hours ; the hogs were in good order, and appeared to be healthy previous to their feeding upon the carcass of the ox.” * * * *

“Perhaps a strong evidence of the origin of this disease being in some poisonous vegetable, may be drawn from the total exemption of those persons from it, who are particular as to the meat, milk, butter, and cheese they make use of, in situations where the disease has been most common ; cattle and horses are also

perfectly exempt from it while kept in pasture fields where the ground has been cultivated, or in the stable.” * * * * *

“This disease is perhaps not dissimilar in many respects to diseases produced by some of the vegetable poisons of the narcotic class, with which we are acquainted, a large portion of it producing stupor, nausea, anxiety and vomiting, with other marks of an inflammation of the stomach; sometimes vertigo, pain in the head, and delirium, where the disease is violent; the inflammation of the stomach perhaps is most generally of the erythematic kind, sometimes evidently of the phlegmonous. As to the particular *modus operandi* of this supposed vegetable poison in producing the constitutional affection which evidently takes place in what I have termed the chronic form of this disease, as well as in its active form, I shall not attempt to explain or hazard an opinion upon.

“The foregoing remarks will apply to the disease described, as it has appeared for several years past. The last season it has been much more prevalent than usual, and unusually severe in its symptoms. It is now the middle of January, 1821, and the complaint is still common, and *unusually fatal*. The uncommon prevalence of the disease during the season, has been attributed to the unusual dryness of it, which produced a great scarcity of vegetable food for cattle, thereby inducing them to eat anything green, which has rendered it very fatal to them; and consequently, by inattention or skepticism as to the cause, has made it very prevalent and severe with the human species. The symptoms attending the disease the past season, have been more inflammatory than usual, and the affection of the brain greater, requiring early and copious blood-letting; some cases have terminated fatally in two or three days, from the active form of the disease supervening, where medical aid was not early called for, or improperly applied. The disease has been attended with a peculiar pain in the head, often with a stupor or coma, which, if not relieved by early blood-letting, has soon been followed by insensible stupor, or high delirium, and has soon destroyed the patient. In some cases a dilatation of the pupils of the eyes has been observable. A free use of the lancet, cathartics, *epispastics*,

and the use of alkalies, has been the most successful mode of treatment."

I conclude by giving a few short extracts from an article written by Dr. Alexander McCall, of Tennessee, "on an extraordinary disease of Tennessee." He says:

"Among other plants"—in the vicinity which he describes—"is one called, by the country people, '*Indian Hachy*,' which is said to have been used medicinally by the Cherokee Indians for some purpose. But it is now chiefly remarkable for imparting to the milk of cows that feed on it, certain properties highly pernicious to the health of animals when taken into their stomachs. This plant, the botanical title of which I do not know, is perennial, sprouting up early in the spring, and flowering in July; its blossoms are of a bluish color, fixed closely to an upright stamen of three or four inches in length. The root is somewhat bulbous, and the leaves bear a slight resemblance to the arum triphyllum when young and tender. So well convinced are the inhabitants of Goose Creek that this is the particular plant possessed of such highly detrimental qualities, that they have fenced in all those places where it is known to grow, with a view of preventing the access of cattle to it." * * * *

"After swallowing the milk, the person in a short time suffers from thirst, nausea, vertigo, confused or imperfect vision, vomiting often ensuing"—* * * "In the year 1820, the citizens of Hartsville, a small village near Goose Creek, were almost all made sick, by partaking of beef sold in their market."

* * * "Dogs, cats, hogs, buzzards, crows, or indeed any animal eating of the vitiated milk or flesh, are affected in a similar manner, and generally die in a few days. I saw a dog pass through every stage of the disorder. He had fed on the flesh of a calf which died by sucking its mother's milk." *

"—— persons poisoned, and particularly by the *rhus radicans*, unless completely cured, are liable to similar repetitions of attack." * * * "In treating the complaint, it has been found advisable always to administer an active emetic as soon as it has been ascertained that poisoned milk or meat has been taken into the stomach. Great relief is afforded by the free use of the

lancet during the early stage of the fever. Charcoal and spirit of turpentine early exhibited, are considered very beneficial. Laudanum has been given to relieve pain in the region of the stomach. But sinapisms and blisters applied over the chest and epigastrium, are said to effect this purpose more promptly."

LECTURE XXXVII.

WORMS.

Remarks—Varieties. First Variety—Character—Appearance—Situation. Second Variety—Character—Appearance—Situation. Third Variety—Character—Appearance—Situation. Fourth Variety—Character—Appearance—Situation. Fifth Variety—Character—Appearance—Situation. General Symptoms—Origin—Spontaneous—Propagation—Remarks—Anatomical Character—Treatment for Lumbrica and others—Treatment for Tenia—New Remedy.

It is well established by scientific investigation, that almost every animal furnishes a *nidus* or nest for the growth of parasitic animals having a distinct organization and existence. The human body is not an exception to this rule. Parasitic varieties of Entozoa are found in the human stomach and intestinal track. The whole subject of Entozoa has been largely investigated, and you will find in the books more minute anatomical descriptions of the different varieties than I propose to give. It will suffice for the purposes of this lecture, to describe the *five* varieties most usually met with in the human alimentary canal. There are others than these that I myself have witnessed, but they are of too rare occurrence to be of any practical importance.

The *first* is the long, round worm, technically called *ascaris lumbricoides*, or *lumbricus*. It is so named from its resemblance to the common earth-worm, and is supposed, by some authorities, to belong to the same species. It is, however, an entirely different animal, and belongs to another *genus*. It is scarcely necessary to give a minute description of this variety, as every one is more or less familiar with its appearance. I will remark, how-

ever, that it varies greatly in size, and from four to eighteen inches in length. It is of a rounded shape, tapering at both ends. I have here a drawing of one, which you will see is a very correct representation. It varies also in color, having, in some instances, a whitish pink hue, and in others a dull, dirty yellow color. It is supposed to feed on the chyme found in the intestines, upon absorption from which the growth of the human system depends. It is distinguished by three tubercles or valves, surrounding the mouth, which open and shut, and by having a canal nearly through its entire length. This canal is of a brownish color, rather straight, and terminates a little anterior to the caudal extremity; yet in the larger portions of the worm, it is somewhat tortuous. The structure is muscular, with nerves and blood-vessels, and more or less cellular membrane, somewhat translucent, so that in the larger ones, the ovi-ducts, which resemble small worms, are visible. I have specimens of that kind selected from a large number—some forty or fifty which were expelled at a single evacuation. One might easily have mistaken the ovi-ducts visible in the larger specimens for inchoate worms. The sexes exist in separate worms, the female being the largest, while the male is more pointed at the posterior extremity, which is curled up, and from which, by turns, a double penis is protruded from a sheath. They are readily distinguished, on careful examination, both by their general appearance and by their sexual developments. The females may be known by the sexual organs, the ovaries and ovi-ducts. Both the latter are white and thread-like organs. The ova have a thin shell about the 25th of a line in length. The males are not so numerous as the females, and I have thought are more difficult to expel from the intestines. This variety of worms is usually found in the small intestines.

As I have already remarked, it is supposed to subsist on the chyme. Whether mucus is a necessary part of its food or not, there is usually a large amount present. Of this the nidus is formed, and without it, it would scarcely be possible for the worm to exist in the bowels. Whether the presence of worms predisposes to the formation of mucus, or whether the mucus forms a pabulum necessary to their germination, are questions not easily solved. But they do not appear to be tolerated without the pres-

ence of mucus. They often penetrate the intestinal tube and pass into the abdomen. I have seen one or two instances of this in making post-mortem examinations, where I found they had become entangled in the coagulable lymph, resulting from the inflammation, which was followed by adhesion.

The *second* variety is the *ascaris vermicularis* or *oxyuris vermicularis*. It is also improperly called thread worm, for there is another variety more like a thread than this. It is commonly called the maw-worm, and is the smallest known. The male is said not to exceed two lines in length or perhaps the fourth of an inch, while the female is five or six lines, or half an inch long. It is very slender, and about the size of a common small sewing thread. This species inhabits the rectum mainly, and is frequently found in great numbers, though it has been seen elsewhere in the alimentary track. You will see in this engraving, which I have here, one largely magnified, while the others are represented of the natural size. This is the little worm so troublesome to children, although it is not peculiar to them, but is occasionally found in adults.

Although of a different species, it is of the same order and family with the round worm, and is said, by some, to develop itself, or exhibit a state of action periodically. During its period of quiescence, it is supposed to lodge in the mucous folds of the intestines. At a certain stage of its existence, not entirely determined,—and indeed the whole theory may be doubtful,—it evolves from its nidus, and produces great irritation, which is said to be periodical, occurring usually at night. The child runs about during the day apparently well, but when night comes it complains of itching in the rectum, which sometimes amounts to very great inconvenience and distress. These, however, are peculiarities not so well settled as others. That the worm does exist mainly, though not exclusively, in the rectum, and that it does produce great local disturbance, is well determined, and that the itching may come on most generally towards evening, is quite probable, though I have seen its irritation produced at every period of the day. In females these worms sometimes pass into the vagina, and produce no little uneasiness.

The male species has a spiral or coiled appearance; the head

is not much thicker than the tail, the head of both male and female, under the microscope, shows a transparent tuberosity, forming lateral wings. The female is larger and straighter, but about one-third from its head is considerably increased in thickness, then contracts and gradually tapers to a size too small to be seen by the unaided eye.

The *third* variety is called *tricocephalus dispar*, or the long thread worm. You see in this engraving a specimen considerably magnified, retaining, however, its correct proportions, while below it is represented in its natural state. This worm is described as from one to two inches in length. I think this is short of the size to which it often arrives: I have seen it four inches long. It is like a small thread, except at the posterior extremity, where it is enlarged. As far as my observation extends, it is not a very common worm. Its shape is somewhat like that of a cat-fish reversed, being largest at the caudal extremity. About two-thirds of the anterior extremity is a delicate capillary, the size of a small hair; the other extremity is as large as a sewing thread. It is of a light color. It has a straight alimentary canal passing directly through it, except in the large portion, where it is slightly tortuous. The male is much smaller than the female, and differs slightly in shape. It has a very small and pointed posterior extremity, of a spiral appearance, with a long penis invested in a proper sheath; while its anterior part is a mere capillary. The female has a longer anterior capillary, while its posterior extremity is straight and only slightly bent at the end. They are propagated by ova, which are oval, with a tough shell, and belong to the same family with the two preceding varieties.

The *fourth* variety is the *taenia solum, vulgaris*, &c., or common tape worm. Of this family there is perhaps but one variety in the United States, though there is another peculiar to other sections of the world. I have here a drawing of a section of the common tape worm. It varies greatly in size and length. The ordinary length is from seven to fifteen feet, while it is sometimes said to arrive at the enormous length of a hundred feet, which I am disposed to doubt. It is of a flat, ribbon like shape, from three to five lines in breadth in the largest places, and tapers to almost a mere thread at the caudal extremity. It is of a white or yel-

lowish color, and is made up of numerous segments, which segments or joints are most distinct and perfect at a distance from the head. Each of these segments, as you will see from the drawing, resembles a gourd-seed, or is quadrangular in shape. The head is smaller than most of the body, and has a small papilla in the centre with openings. From two of these openings there are canals passing down the body, which communicate with each other by means of transverse tubes, and, what is singular, these canals, after passing through the neck, are not entirely within the body of the little animal. It is supposed that these worms can exist or reproduce themselves if but a single joint is left in the alimentary canal. This I consider very doubtful, unless the *head* is left. For joints are developed only from the neck, and push those first formed still further back. The posterior joints are therefore the oldest and most perfect, and often come away filled with mature ova. They are replaced by new joints, and it therefore seems necessary to expel the *head* of the animal to prevent reproduction. This variety is hermaphrodite. It is supposed that the ova, as they escape from the animal, are fertilized by a fluid which is made to flow from its vesicles by the pressure of the ova in passing out.

It inhabits the small intestines. Vogel, p. 424, says: "It cannot be denied that the tape worm, by its presence in the intestinal canal, may cause derangement of the organism; nevertheless its pathological importance is commonly overestimated. It often remains in the body for a long time without its presence being revealed by the slightest symptom; sometimes, particularly when of great size, its movements become annoying and unpleasant."

The *fifth* variety is called *taenia lata*, *brothiocephalus latus*, or broad tape worm. It is said never to have been seen in the United States, though some writers claim that it has been imported. It is peculiar to Russia, Poland, Eastern Prussia, Switzerland and some parts of France, and Vogel says that if it is found elsewhere, "we may be assured that the patient is a native of one of the above-named countries, or at least has caught it there." It is much broader and its joints shorter than the common long tape worm. It differs from the *taenia vulgaris* by the joints being more perfect, well developed, and thrown off in connected rows,

and by a cavity in the centre and not in the border of the joint. It varies in length from one to twenty feet.

These are the varieties of worms usually described by the authorities. I have seen what appeared to be a different variety. Some few years since I was called to see a child having all the ordinary symptoms of worms. After taking some active worm medicine, the child evacuated nearly a quart of little animals entirely different from any thing I ever before saw, and from any thing that I have found described in the books. They had the appearance of worms in the chrysalis state, and were about three-fourths of an inch in length and perhaps two lines thick. They exhibited the corrugated appearance of some varieties of larvae, which you have no doubt seen in the ground, vulgarly called slugs. As I did not have an opportunity for a very careful examination, I can say but little on the subject.

Almost every variety of symptoms is found to result from verminous irritation in the human system. But the symptoms most frequently occur in children, and are generally produced by the long, round or common worm. You will find the abdomen prominent, full or bloated; the appetite exceedingly variable,—sometimes deficient and sometimes voracious. The breath is usually offensive; the tongue generally has a white coated appearance, and often the upper lip will be much swollen. In some cases the eyelids become edematous, and so swollen that the child can hardly see; in others edematous patches will present themselves in other parts of the body. I recollect of seeing a child on one occasion with a sac of water on the end and lower part of the penis, involving the frenum and a portion of the prepuce. I suspected, from the symptoms, that worms were the cause of the difficulty, and on administering worm medicine the swelling disappeared. In another case the child's face was so swollen that its eyes were closed, and an eruption appeared resembling that of scarlet fever. But the peculiar symptoms of scarlet fever being absent, I suspected the presence of worms, from the fact that all the children of the family were subject to have them. The mother was an intelligent, self-possessed lady, who never sent for a physician until she really had cause for alarm. In this case I found the child lying in a stupid condition, with a high fever, his face red, as in

scarlatina, swollen and disfigured, and his eyes closed with the tumefaction. I administered worm medicine, and, on calling the next morning, I found it had operated freely, but had not started the worms, and the symptoms were not in the least ameliorated. The eyes were still closed; the child could be roused with difficulty, and I was doubtful of his recovery. Upon giving the case a thorough reëxamination, my opinion as to the cause of the difficulty was confirmed, and I therefore repeated the medicine. When I called in the evening he was up and playing round the house, having obtained relief, about an hour before I called, by evacuating *forty-seven* worms, not one of which was less than ten inches long.

Children troubled with worms, frequently start in their sleep, and are apt to have restless nights. Almost all children of nervous temperament will be subject to this starting during febrile action, and it cannot be considered a diagnostic symptom of worms. Another common symptom, is a peculiar paleness around the mouth, extending up the sides of the nose, though I have seen it when the patient was otherwise affected. It probably results from gastro-intestinal irritation. Itching in the anus is the most common and only particular effect produced by the small worms, and you can imagine that this irritation may be sufficiently extensive to disturb the general system. Corea sometimes, and epileptic fits, very often result from verminous irritation; but the latter are usually harmless when properly treated. A peculiarly dry, choking cough, is a very common symptom. Children almost invariably have a dry cough, and a tendency to swallow as though they were choked. It is said by the authorities that most children affected by worms are subject to indigestion; but I have observed that the most vigorous, healthy children are most obnoxious to them, while those of nervous temperament and spare habits are least liable to be troubled; and I suppose their nervous systems are too sensitive to tolerate the long-continued irritation which would be likely to be set up by the presence of worms. Evacuations would most probably soon follow.

It is a most remarkable fact which I have never seen stated in the books, and to which I would call your particular attention, that lying-in women are quite subject to worms. I have, in a

number of cases, found fever following child-birth, which was not amenable to ordinary remedies, but which was relieved immediately upon the evacuation of worms. And where there are no other circumstances to account for symptoms of this kind, I am universally in the habit of administering worm medicines, and almost always with success. Whether the period of gestation favors the formation of worms, I am not prepared to say, but am inclined to that opinion. The fact stated is one that you should bear in mind, as you might otherwise administer purgative medicines of various kinds without giving any relief.

In regard to the *origin* of worms, the subject is involved in obscurity and doubt. By some they are supposed to be spontaneous. This view is maintained from the supposed fact that children are born with worms, and that they are found in the intestines of premature or still-born children. This fact seems to imply an origin from some other cause than an extrinsic one, but it may be doubted whether it proves a spontaneous origin. Another theory accounts for their existence by propagation from progenitors of like species. But this theory, you will see, does not touch the question of the *first origin*. It merely supposes that this class of animals is *continued* by the exercise of its reproductive powers, as in the case of other animals. The question still remains, do they now in any case originate *de novo* from the direct and immediate exercise of creative power? This appears to me to be the only question; for, to say that matter, or the elements of matter, acting under established laws, known or unknown, may be arranged in collocations favorable to the development of these, or any other organisms, is simply to take for granted that the *germ*, the *vital principle* of the organism, has been previously created. Or, if it is denied that anything is thus assumed, and if it is still maintained that the first existence of these organisms, necessarily or otherwise, grows out of certain collocations of matter, even then, I ask, what additional light is shed upon the question? In either case the beginning is equally dependent on creative power, and equally beyond our comprehension. It seems, however, to simplify the matter somewhat, to follow the numerous analogies of nature, which favor the theory of the original creation of the *type*, with the power of reproduc-

tion. The conclusion would then be inevitable, that these animals, like all others, are now generated only by propagation.

To support this conclusion, as well as to show the state of German opinion, I quote the following from Vogel's *Pathological Anatomy*, page 382, et seq. :

"Respecting the *origin* of parasites, there have existed from the most remote periods, when they were first remarked, till the present time, two opposite opinions. According to one view they are generated, in the same manner as most other animals and plants, by propagation from progenitors of like species; according to the second view, they originate from equivocal generation. That many parasites can, and actually do, arise by descent from parents of a similar kind (by germules, seeds and ova,) is at the present day allowed even by the believers in equivocal generation. The controversy hinges only upon the question: can some parasites, in certain cases, also originate *de novo*, or are those at present occurring invariably, and in every case, derived from parents of like species? A positive reply to this question, based upon convincing observations and researches, is as little possible now as at the time when Pallas wrote his interesting dissertation upon the subject,* although since that period numerous eminent investigators have devoted their attention to the formative relations of parasites; but, nevertheless, it appears to me that a majority of important reasons favors the view that at the present time no parasites are spontaneously developed, but that all are, in some way or other, derived from parents of like species."

Vogel then gives a "brief abstract" of "the doctrine of spontaneous generation," as follows: "The idea of spontaneous generation is a philosophical necessity. All organisms with which we are acquainted, that are now derived from parents of like species, must at one time have arisen in another manner without parents. Whatever name may be applied to this primitive origin, or whatever view may be taken of it, whether it be termed creation, or receive any other name, it is, in reality, spontaneous gen-

* P. S. Pallas, de infestis viventibus intra viventia. Lugduni Batavorum, 1760. "Traditis nunc omnium sententiis de viventium intra viventia origine, expositisque argumentis propugnantibus singulas et contrariis, cujuslibet, erit verosimillimam mente, comprobare, donec experimenta quæ in hac parte maxime deciderent, certos nos reddunt."

eration, in contrast with derivation from parents. This necessity of a spontaneous origin of the organisms at present existing is, moreover, daily proved by experience. Geology demonstrates that many, indeed the greater number of the organisms now on the earth's surface, did not exist at an earlier period, since we find no vestiges of them. Accordingly, it is undeniable that spontaneous generation occupies a prominent position in the history of the world, as a mode of origin of all organisms. The question, therefore, turns only upon this point: can *existing* organisms, which at a former period originated spontaneously, and have subsequently propagated themselves in another manner, again rise spontaneously? or, in other words, is there a repeated spontaneous origin of creatures of the same species.

“ Let us now consult experience for materials in order to reply to this question. We find that in all cases where opportunity has been afforded of tracing, by direct observation, the origin of an organism; it has taken place by propagation; whilst, on the contrary, not a solitary unexceptionable observation of a spontaneous origin exists in the records of natural history. Analogy is, therefore, completely in favor of the view that propagation is the only manner in which existing organisms are engendered. The value of this evidence is further enhanced by the history of science. In earlier times it was admitted that even the vertebrate animals were produced by repeated spontaneous generations: geese and ducks from barnacles, (Lepas;) the batrachia and serpents from mud; and still, at later periods, insects, as the coprophagi, from dung; and fleas from putrid urine. No one, at the present day, doubts that all these animals are generated by propagation alone. Indeed, in modern times, chiefly through the labors of Ehrenberg, even the generation of infusoria has been limited to the propagative system. Analogy would, therefore, lead us to conclude that parasites are also produced in this manner alone. The objections which have been urged against this view, and the arguments which have been adduced in favor of a spontaneous production of parasites, rest chiefly on the ground, that in many cases the origin of these organisms, by means of propagation, is inexplicable; and is, therefore, held to be impossible. But it is overlooked that the assumption of their spontaneous origin is, in reality, merely a

formal explanation, which leaves us completely in the dark respecting the true reasons and conditions of their production. Moreover, many of these reasons have latterly become invalidated by the progress of knowledge, since not merely the possibility, but also the reality, of their propagation to other organisms, and the inducing conditions, have been demonstrated in various parasites; and although in this respect, at present, much appears mysterious, yet the numerous experiences of later years must raise a hope in every unbiased observer, that the further advancement of knowledge will clear up the obscurity which, at present, envelops this province, and will establish the origin of all parasites by propagation, to the exclusion of spontaneous origin. The prevalence in the belief of spontaneous generation was an important obstacle to the progress of knowledge, since it hindered accurate investigations regarding the formative relations of parasites; and, with the general diffusion of the view, that all parasites originate by propagation, observations concerning their actual transference from one individual to another, will, doubtless, also accumulate."

"If, then," continues Vogel, "we assume that parasites are invariably derived from parents of the same kind, and are never produced spontaneously, it follows that they are never a true product of a disease, and cannot, therefore, originate directly from degenerated particles of the body, depraved secretions, &c. It is, however, undeniable that morbid changes of portions of the body frequently exercise a certain influence upon their origin. These changes may favor their development, and, indeed, alone render it possible, by inducing conditions essential to it; they can again prove injurious to it, since they may remove conditions necessary to its occurrence. Thus, for example, vegetable parasites (fungi) do not in general develop themselves upon mucous membranes, until, by morbid processes, a deposit of coagulated fibrin, which serves as a bed, has become prepared for them, and until this exudation has passed into a state of putrid decomposition. An abundant secretion of mucus favors the development of worms which have entered the intestinal canal from without. Some states of the organism, on the contrary, disqualify it as a habitation for parasites. Thus, most of the entozoa in the intestinal canal are expelled by increased peristaltic action; some fluids of the body,

as bile, urine, gastric juice, and some medicines, prove deleterious, and indeed, fatal to some of them; inflammation, or at least suppuration, may injure, and even destroy them."

In connection with the fact that an abundant secretion of mucus is always attendant upon verminous irritation, I wish to add a practical remark. Accumulations of mucus *may* often result from irritation produced by other causes. And it will, therefore, behoove you not to be too hasty in inferring the existence of worms from this consideration alone. But if the family predisposition was known to favor their existence, it would generally be sufficient ground to warrant the conclusion. If, however, the family predisposition was against the opinion, further investigation should be made to ascertain if there was not some other cause of the phenomenon. It is also important to bear in mind that the traditional notion, that worms naturally exist in the human stomach, and should not be removed unless they produce constitutional effects, is absurd and groundless. However much they may indicate functional derangement, yet they are not always present.

As worms rarely cause death, opportunities seldom occur for *anatomical* observations. In such cases as have been examined, accumulations of mucus, and more or less irritation, have been found to exist. The latter appearance, however, might have been the effect of adjacent inflammation. In one case, perforation of the intestine was found, and the worm had lodged in the cavity of the abdomen. Some varieties have the ability to insert their capillary heads into the membrane.

In regard to the *treatment* for worms, the remedies are various. Every physician has his favorite. The treatment, of course, must be varied according to the symptoms of each case. If, for instance, you are called to treat a child in convulsions, where worms are supposed to be the cause,—and in the majority of cases such is the cause—the first indication is to relieve the convulsions. I have little confidence in a warm bath, which is the popular remedy for such cases, but prefer brisk friction and warm applications to the abdomen, with stimulating friction of the spine. I also bathe the head with warm water and fan it, and apply hot water and sinapisms to the feet, if they are cold. An anti-spasmodic should be administered immediately. Our sudorific tincture is an excel-

lent remedy, but should be given with care to young children. From half to a teaspoonful would not be an overdose for a child of from two to four years of age. Equal parts of the tinct. asafetida and sulphuric ether make an excellent remedy. I have also given chloroform with prompt relief. Such convulsions appear exceedingly alarming, but are not particularly dangerous, and soon pass off.

After these symptoms are relieved, a decoction of our antibilious physic, with pink and wormseed, given in sufficient doses to produce free evacuations from the bowels, and repeated two or three days, will usually be successful, and in such cases has been my main reliance. It is equally reliable in the treatment of the small long thread-worm, which inhabits the same portion of the intestinal tube. It is composed as follows :

| | |
|-----------------------|------------|
| ℞ Anti Bil. Phys. | } āā ʒiij. |
| Spigelia Marilandica, | |
| Chenopod. anth. | |

Decoct. 1 pt. water—Dose, tablespoonful.

When this course is pursued, you will scarcely ever fail to procure relief on the first day, and almost certainly on the second. If, however, it has been necessary, I have been in the habit of repeating on the third day. And such has been my success with this measure, that, when relief was not obtained on the third day, it was conclusive evidence to my mind that the symptoms were deceptive.

There is a popular prejudice against pink in many communities, on account of the apparently alarming symptoms it sometimes produces. These, however, are evanescent and perfectly harmless.

You will frequently find periodical fever associated with worms, which, in many instances, will subside on expulsion of the worms. But when it is dependent on malarial influence, it will not thus yield, and then it will be necessary to administer anti-periodic remedies.

When the pink mixture has failed, I have substituted, with abundant success on several occasions, a combination of the extract of spigelia and sulphate of iron, administered two or three times a day, and followed by a brisk cathartic. I recollect one case in particular, in which every other remedy had failed, and this

was resorted to with complete success. An enormous quantity of worms was discharged, and I think in this case there were three or four, at least eighteen inches long, and of a corresponding size. You can imagine they were difficult to remove.

A favorite recipe for worms, where the patient is not much sick, is the following :

| | | |
|---|---------------------|-----------------|
| R | Oleum Chenopod. | 3ss. |
| | Castor Oil, | 3j. |
| | Oil of Spike, | 3iij. |
| | Spirits Turpentine, | 3ij. |
| | Croton Oil, | Gtts. xvj. Mix. |

A teaspoonful should be given once or twice a day, and it will be found less troublesome to administer than medicines which have to be given every hour or two. In this combination you have excellent anthelmintic and efficient purgative properties. It should be thoroughly mixed to guard against the effects of the croton oil. A favorite remedy with the planters of the South, is the Pride of China, or *melia azedarach*, given in decoction, in the use of which I have had no experience. Analogous to this, in some respects, is the burr of red cedar, the efficacy of which probably depends on the turpentine it contains. These, then, are the chief remedies for the common round worm, and also for the thread worm.

The ascarides, or that variety which infests the rectum, can best be removed by local treatment, though the vermifuge and cathartics will rarely fail to bring away more or less of them. I have uniformly succeeded in dislodging or discharging this variety with injections of moderately strong salt and water, or soap suds, repeated every day or so, for some time. In addition to these, I have also injected a solution of copperas, say a drachm to a gill of warm water. When irritation, amounting to dysentery, follows or is produced by these worms, an injection of althea or slippery elm, or the common starch and laudanum injection, may be used.

The symptoms of the tape-worm are somewhat peculiar and worthy of brief consideration. It usually inhabits the small intestines and most generally exists singly. It rarely occurs in children or aged persons, though I believe it has, in some cases, been found in the former. It is comparatively rare in persons of

any age. In my own practice, I have never met with more than two or three cases. It is said that tape-worms sometimes exist for a considerable length of time without producing much inconvenience or suffering. The disturbance they occasion is not generally that of severe pain, but uneasiness and distress, which often, sooner or later, impairs the general health. The symptoms usually complained of, are, more or less uneasiness in the head, generally in the forehead, sometimes amounting to pain, slight giddiness and ringing in the ears. The eyes often have a heavy feeling and the patient is frequently rubbing them; the lids become edematous, which is also a frequent symptom of the common round worm; the pupils are sometimes dilated, and you will often see spasmodic twitchings of the muscles, both of the eyes and lids. There are frequent changes of the countenance, at one moment being highly flushed, and then again being exceedingly pale. Twitching of the muscles, particularly about the mouth, and a pinched or contracted appearance of the nostrils, accompanied with an itching sensation, are very common. The appetite is variable, being sometimes voracious and at others deficient. The breath is always offensive and the tongue usually furred. There are frequent turns of nausea and sometimes ejections of frothy mucus. There is often, as with children having the common worm, a grating of the teeth while asleep, fullness of the abdomen with contraction about the navel, and a sensation after sleeping all night, of an animal moving about in the bowels, accompanied by fugitive, shooting pains; all these symptoms subside after eating. The patient, as these symptoms gradually increase, becomes weak and nervous. And finally, worn down with the excitement, he becomes hypochondriacal and sometimes deranged. The most unequivocal symptom, is a discharge of some portion of the joints of the worm.

In regard to *treatment*, I have, in the few cases that have come under my observation, procured relief by the use of a decoction of the pomegranate bark, continued for a few days, and then followed by purgative doses of spirits of turpentine. The decoction was made of an ounce of the bark to a pint of water, and taken on an empty stomach. This was continued a few days, and then followed with about one ounce of the spirits of turpentine

and the same quantity of salad oil. If it did not operate in two hours, I followed with a dose of our anti-bilious physic. This will rarely fail to operate freely, and will usually give relief. Some physicians have found the turpentine equally effective in much less doses than I have here recommended; but the amount I have been in the habit of giving is not as large as you will find recommended in some of the authorities. The root of the *aspidium filix mas*, or male fern, has a reputation, in some sections of the country, not equaled by any other article of the materia medica; but whether this is well founded, I am unable to say from personal experience. There is doubtless, however, some foundation for the opinion so generally entertained in regard to it. The Boston Medical and Surgical Journal contains one or two communications in regard to a new remedy, which, from the character of the Journal, and the apparent truth and simplicity of the statements, I here copy: Vol. 45, p. 201—

“The following letter,” says the Editor, “is from Richard Soule, Esq., of Boston, a gentleman of the highest respectability, whose only object is to make known extensively, among physicians, what he considers a specific for the destruction of the tape-worm,” &c.

“DR. J. V. C. SMITH—

Dear Sir :—The merits of the very simple *pumpkin-seed cure* for *tape-worm*, rest on the testimony of those who have thereby succeeded in expelling these troublesome intruders from the premises they had occupied for years; and the accidental agency the writer has had in one of these cases, has brought a number of applications for the recipe. Should you deem it of sufficient importance to occupy a page in your widely circulated Journal, it may serve to relieve some afflicted one who cannot well avail himself of the physician's aid, and also give to physicians a new remedy; I therefore place the recipe at your disposal.

Yours, assuredly, R. S.

“*Cure for Tape-worm.*—Procure sufficient seed of the pumpkin, (those grown in the West Indies are the best), to make two ounces after removing the outside shell of the seed; put them into a mortar and add half a pint of water; pound them well up,

and make a liquid orgeat of them, which strain through a cloth. Drink this mixture in the morning on a fasting stomach. If it does not operate in the course of an hour and a half, take one ounce of castor oil. Drink all the time as much fresh, cool water as the stomach can bear or contain; that is, drench yourself with water. After taking the orgeat, if the stomach is well rubbed with ether, and an injection of about 60 drops of it is taken, you will find it an assistant to the orgeat, but this may not be necessary. Should the first application of the remedy not answer, repeat it the next morning, and there is no doubt your complaint will be removed. The worm will leave the patient all at once, and probably entire. This can be ascertained by finding the small end or head of it, which tapers off almost to a point."

The writer adds, in a postscript, that he had testimony from a friend in New York, that this remedy had "cured probably a dozen different persons afflicted with the tape-worm, and who had been given over by their physicians." In one case the worm expelled, "was 34 feet long, and each link about one inch." He also mentions a lady in Boston, who was restored to perfect health, by the same means, after years of prostration and efforts for relief.

In the same volume, page 274, another correspondent says that he recommended the above remedy to an intimate friend, who, "for want of West Indian, or other pumpkin seeds, took undried acorn or marrow-squash seeds, and proceeded, *secundem artem*, following the orgeat, in about one hour and a half, with about six drachms of castor oil, taken in two spoonfuls of Holland gin. He drank very little water twice, drank and ate nothing else till noon, when the only effect of his faith and practice was manifested 'in one liquid discharge, containing the squirming worm; at one end about one-third of an inch broad, tapering down to nothing.'"

F. W. CRAIGIN.

The medical periodicals have recently mentioned another remedy—the product of *Brayera anthelmintica*, and known by the common name of *Kousso*.

POSTHUMOUS WRITINGS

OF THE LATE

PROF. T. V. MORROW,

ON THE

THEORY AND PRACTICE OF PHYSIC.



I.

FEBRIS INTERMITTENS, OR INTERMITTING FEVER.

This is a form of disease of great frequency of occurrence, and is characterized by a succession of regularly recurring paroxysms, each of which is followed by a distinct intermission, the duration of which varies materially in different cases, according to the type which the attack assumes.

The paroxysm or fit, when formed, includes three *stages* or *periods*, sufficiently distinct in their features to entitle them to a separate consideration, each successive one being appropriately regarded as the immediate consequence of that which next precedes it.

Like other forms of fever, the paroxysm, or attack, is preceded by a train of symptoms, which vary according to the special nature of the cause which gave rise to them, and the character of the constitution in which they occur, modified also by the peculiar epidemic constitution of the year. This series of symptoms constitute what is called the *forming stage*. Among those which more commonly mark this period, may be reckoned a slight sense of weariness, occasional yawning, stretching, lassitude, loss of appetite, a slight increase in the irritability of the stomach, sometimes nausea, a bad or bitter taste in the mouth, the tongue being slightly furred, and generally an uneasy sensation in the stomach and bowels, a slightly uncomfortable feeling throughout the whole body, and a disinclination for either mental or corporeal exertion. Other cases may be marked by additional and different phenomena during their premonitory stages.

After the premonitory symptoms continue a longer or shorter period, the proper paroxysm of the attack is ushered in by its

cold stage, which is the first period of the three already referred to as constituting the division of the paroxysm into three stages, and which may be regarded as the first infallible evidence that the cause, or causes, have acquired a predominance over the restorative, or resisting powers of the constitution—for at least a limited period. This stage is usually marked by the following symptoms: a sensation of cold is felt more commonly in the extremities or back, which may be at first very slight, but gradually increasing until the patient becomes very uneasy, changing his position frequently, the extremities getting still colder, and in many instances feeling somewhat benumbed. The mind seems to be very restless as well as the body; it is, with much difficulty, fixed or concentrated on any particular subject. The feet and hands become very cold, and an universal paleness of the skin takes place. Sometimes a general shaking of the whole body occurs, and there is a shrinking of the volume of the body from a recession of blood from the superficial capillaries, a hurried and somewhat irregular respiration, a limpid and pale condition of the urine, and often a desire to evacuate the contents of the bladder, nausea and vomiting, and an oppressed and uneasy sensation of the stomach. The pulse is small, frequent, contracted and firm, thirst is urgent, mouth dry and contracted, confusion and dejection of mind. The chills are usually diffused over the whole body, sometimes, however, confined to one particular part of the body. The duration of this stage varies from a few minutes to several hours. The chilly sensations, in many of these cases, are very much intermixed with flashes of heat, especially towards the conclusion of this stage. The nausea and vomiting are generally more severe about the time the hot stage is about overcoming the cold.

Next follows the hot stage, which is marked by the following symptoms: the countenance is flushed; a hot, husky and dry state of the surface of the body; thirst still continues great; strong, full and hard pulse generally; volume of the body increased; respiration free and full, though somewhat hurried; pain in the head, back and loins increased; urine small in quantity and deep colored; temperature of the body always considerably above the

natural standard, and the strength is frequently increased for the time being. This often lasts considerably longer than the cold.

The sweating stage commences by a perspiration on the forehead, which gradually extends over the whole body, and with this comes a general abatement of all the symptoms of the previous stage. The pulse loses its hardness but retains its fullness, urine becomes sedimentous and increases in quantity, respiration free and easy, pains subside, and the patient passes into a state of apyrexia, or convalescence, gradually.

The period of intermission is far from being a state of perfect health. There are during the whole of this period certain symptoms present, which indicate the presence of disease, such as a sense of languor, lassitude, weariness, on slight exertion of either body or mind, increased frequency of the pulse over the standard of health, pale and sickly aspect of the countenance, preternatural irritability of the system, an unusual sensibility to cold on exposures, and in most cases an impaired state of the appetite and the powers of digestion.

Intermittents not only have the various types of quotidian, tertian, quartan, and their several complications, but present themselves under the different varieties of inflammatory, gastric, congestive and malignant.

The *inflammatory* variety is characterized by a pretty severe chill, which is generally short; high, vigorous and strong reaction; the hot stage is usually much protracted, skin hot, and very red. This variety more commonly occurs in young, robust and plethoric subjects, and is very apt to take place in the spring and winter; the quotidian is much more apt to have this character than the tertian, and the tertian than the quartan. The intermissions, in cases of this kind, are short and very imperfect; the pulse remains somewhat quick and hard, and there is more or less increase of temperature of the skin during the whole period of apyrexia, with frequent transient pains, and often a dry, hacking cough and an irritable and fretful temper.

The *congestive* intermittents are by no means frequent, and occur in individuals of the nervous temperament, of a relaxed and debilitated habit of body, and are characterized by tedious chills, and a feeble and very imperfect reaction, a sense of weight and

oppression, more especially in the breast; a small and weak pulse; frequently a fainting tendency is noticed; sometimes coma and a deep oppressive pain in the head, countenance pale and somewhat contracted. During the fever there are often chilly sensations externally, and a sense of oppressive burning heat internally.

Gastric intermittents are such as manifest a striking amount of irritability of the stomach and bowels, accompanied with a redundancy of the biliary secretion, which, in connection with other morbid accumulations in the alimentary track, act as sources of irritation, and give rise to frequent nausea and vomiting, pain in the head, foul and bitter tongue, thirst and a desire for acid drinks, a yellow tinge of the skin and *tunica conjunctiva*, sense of weight and fullness in the right hypochondriac region, high colored urine charged with bile, and a decided aptitude for the production of visceral obstructions, such as induration of the spleen and liver. This is, perhaps, the most frequent modification which is met with by the practitioner.

Malignant intermittents are those which are characterized by very copious, debilitating and fœtid sweats, and frequent hemorrhages from the various outlets of the body. They are very dangerous, and occur more commonly in hot climates and run their course with much rapidity.

Intermittents are known to assume, in some instances, an irregular and anomalous character. In some cases the stages are reversed, and in others, one of the regular stages is substituted by some other symptom; as, for instance, perspiration by diarrhœa, nausea and vomiting as substitutes for chills, and, in other cases, some one of the stages appears to be entirely absent.

The attacks of this disease, in cases of young children, are much more indistinctly marked, in its various stages, than in adults, or even in more advanced children. Still, however, the accurate and critical observer can recognize its various stages, with a reasonable degree of certainty. The cold stage is more obscurely developed than any of the others, and is usually manifested by a paleness of the skin, a shriveled and shrunk appearance of this tissue, stretching and yawning, &c.

The consideration of masked agues will be reserved for a future chapter.

Intermittents are not unfrequently complicated with various other affections, such as dysentery, splenitis, jaundice, cholera morbus, &c. A large train of morbid phenomena may follow, as consequences of long continued and repeated attacks of intermittent fever; but they also possess the acknowledged power of modifying, to a great extent, and indeed of removing completely, many other forms and modifications of disease.

A patient observation of the natural tendencies to a spontaneous termination of intermittents, has resulted in the conviction, on the part of those who have made these investigations, that the quotidian type manifests a pretty well marked inclination to come to a close on the seventh day of the attack, tertians on the fourteenth, and some say the twenty-first, and quartans at or about the end of the sixth week, if uninfluenced by any treatment whatever.

Intermittents are not to be regarded as dangerous, as a general rule, more especially in temperate latitudes; but in the more tropical regions they are more apt to assume a malignant character, and consequently a much greater liability to a fatal termination exists in cases of this kind. Mild and regular intermittents are easily cured, when judiciously treated—the more irregular, the more difficult to effect a cure.

Among the symptoms which indicate danger, may be mentioned a tumid and hard abdomen, delirium, difficult and oppressed respiration, with a swelled state of the tonsils, profuse and long continued and offensive diarrhoea, bloody urine, and when the patient remains much oppressed and debilitated during the intermission.

The favorable symptoms are, the appearance of scabby and humid eruptions about the mouth, the reëappearance of suppressed discharges, whether morbid or natural, a moist and soft state of the tongue and skin, and improvement of the tone of the digestive organs. Tertians seem more readily removed than quotidians, and quotidians than quartans. A postponing is also more favorable than an anticipating intermittent. Sometimes these cases lose their intermitting character and become remitting, which is of course an unfavorable change.

Causes. The cause which more than all others seems to be most concerned in producing this disease is malaria or miasms,

arising from the putrefactive decomposition of vegetable matter, and abounding in low, rich and marshy districts, operating much more extensively during certain years than others. Worms, the suppression of customary evacuations, as well as a variety of morbid accumulations in the alimentary track, have been instrumental in producing this complaint. Exposures to cold and check of perspiration have acted as the immediate causes of its invasion in a vast number of cases, especially those in which a predisposition has been generated in the system by the influence of *Malaria*. Indeed it may, with great propriety, be remarked, that almost any cause calculated to disturb, to any considerable extent, the vital operations of the human economy, will give rise to an attack, when the system has been previously prepared by the gradual influence of *Miasmata*. As to the period which intervenes between the first impression of the malarious cause and the development of the actual attack, sufficient testimony has accumulated on this subject to render it certain, that it is very various in different individuals, dependent, no doubt, on the intensity of the action of the cause, and the diversified susceptibilities of the individual subjects of the attacks. Intermittents occurring in the Fall are called *Autumnal Intermittents*, those occurring in the Spring are called *Vernal*.

Eclectic Reformed Treatment. I deem it wholly unnecessary on this occasion to mention the details of the ordinary methods of treating this complaint, according to the various systems and plans at present followed and practiced by their respective votaries; neither do I regard it as a duty properly incumbent on me to bring forward the numerous, and, to my mind, insurmountable objections which undoubtedly exist against numerous portions, if not the whole, of any one of the prevailing schemes of medical practice. They all perhaps contain some features which are to a certain extent valuable and worthy of adoption, which the discriminating, enlightened, highminded and liberal advocates of Medical Eclecticism and Reform will find no difficulty in incorporating as a part of their medical principles and practice.

As a preliminary step to the institution of a course of treatment in any given case, it becomes the duty of the practitioner to make himself intimately acquainted with the *Type* of the case before

him, which is practicable in all cases in which the attack has progressed far enough to develop its true character. But the practitioner should be remarkably careful not to suffer himself to be misled by the information elicited on examination of the patient or friends, in regard to the phenomena attending previous paroxysms, and the order and succession of their symptoms. It not unfrequently happens that the previous observations of the patient have been so inaccurate on this subject as to disqualify him, in a good degree, from giving anything like an intelligible and satisfactory account of the progress of his own case. The cold stage of the paroxysm is so very slight in many cases, as to escape not only the notice of the patient himself but all who may be present. I have examined hundreds of cases of this complaint, in which the patient denied at first the existence of any such stage, but upon a more critical and searching inquiry, was led to see and acknowledge his error. You cannot therefore place implicit reliance on the statements of patients at all times, more especially those whose mental constitution and habits of thought have not duly qualified them to make accurate distinctions and critical observations. It is a matter of the highest possible moment to the practitioner, to have accurate conceptions of the nature and type of his patient's case, in order that he should be duly qualified to direct, in the best manner for success, its subsequent treatment.

The state of the patient is generally such as to require pretty efficient evacuations, either by vomiting or purging, and sometimes both. As a general rule, however, the administration of a mild but thorough cathartic will be found all that is necessary in this way, and for this purpose perhaps none will be found better than the common *anti-bilious physic*, which should be given in doses of two teaspoonsful of the powder, to which half a teacupful or more of boiling water had previously been added, well mixed and sweetened, the whole, for an adult, taken at once. This dose operates with singular briskness and energy as a cathartic. Sometimes, however, when the stomach is much loaded by morbid accumulations, it operates by vomiting also, and has been found amply sufficient in many cases to break up the attack at once, without the aid of tonics. The tonic and stimulant which I have found more universally successful than any other, for the last ten or

twelve years of my practice, is what is usually denominated the *ague bitters*, the composition and preparation of which is as follows: sulphate of quinine 30 grs., cream of tartar and pulverized cloves each one ounce, whisky one pint; mix. Of this give one tablespoonful every hour during the intermission, until about three hours before the next paroxysm is expected. The dose should then be doubled, viz: give two tablespoonsful instead of one at the same intervals. It may sometimes be necessary to give these double doses once every half hour for two or three hours previous to the expected paroxysm, when the case proves unusually obstinate. This course very rarely fails of success when it is premised by suitable evacuation. It often arrests the chill within the first day or two, and seldom requires longer than three or four days for arresting both paroxysms of the *double tertian*. But this tonic should be continued for several days after it has been successful, for the purpose of preventing a relapse, in less frequent and smaller doses. Say one tablespoonful once in two hours will be sufficient for that purpose; especial care should be taken to have the patient in a high state of stimulation about the time which marks the return of the paroxysms. Should the bowels require to be opened after the chill is prevented, care should be taken so to time the purgative that its operation should not come on at or near the time of the return of the paroxysm, inasmuch as such an event would be liable to increase the chances for the successful return of the cold stage of the paroxysm.

Should the stomach be nauseated with a loaded or oppressed state of that organ, bitter taste in the mouth and furred state of the tongue, such a condition calls for the use of an emetic, which should be accordingly given at any stage of the disease. The *common emetic powder* or *tincture* would form a commodious preparation for this purpose.

The following plan for the arrestation of the paroxysms of an intermittent, has proved eminently successful in my practice in nearly every case in which it has been tried. Two hours before the paroxysm is expected, place the feet of the patient in hot water or weak ley, and at the same time administer freely of hot or warm sweetened herb teas, such as catnip, pennyroyal,

balm, sage or ginger. After soaking the feet 15 or 20 minutes, let the patient get in bed and have a hot brick placed to his feet, and take, in connection with the tea, a teaspoonful of *sudorific tincture* every 20 minutes or half hour, until the patient should get into a state of profuse perspiration, which should be continued for an hour or two after the time of the chill. It generally requires three or four teaspoonsful of the sudorific tincture, as well as copious draughts of the herb tea, to be taken every ten or fifteen minutes throughout the whole period, to keep up the perspiration as freely as it ought to be in order to be successful. It is distinctly understood that in all cases, suitable evacuation by vomiting and purging, or either, as the case may require, should be premised in order to ensure the desired success according to the foregoing plan. This mode of treatment scarcely ever fails in preventing the paroxysm the first or second trial, provided it is carried out with a suitable degree of energy and care. The point, however, in which the practitioner is most liable to fail, is in neglecting to commence soon enough to bring the patient fully under the influence of the means, before any sign of the fit approaches. After preventing the paroxysms in this way, it becomes necessary to repeat the same measures for two or three successive days, to ensure a greater exemption from any liability to a return.

In order further to ensure the success of these measures, the use of from one to two table spoonfuls of the *vegetable wine tincture* every two hours through the day, during the intermission, will be found highly useful as a febrifuge and tonic.

The paroxysms of an intermittent may, with a good degree of certainty, be arrested by a pill composed of extract of cornus florida 3 grains, piperine 1 grain, given every two hours during the intermission, in conjunction with a strong decoction of the *senecio gracilis* in doses of two or three tablespoonsful every half hour during the intermission, in like manner with the pills.

The paroxysms of intermittents may also be arrested by the operation of an emetic given with a view to have the patient fully under its influence at the time of the accession of the fit. The *common emetic powder* may be chosen for this purpose, and admin-

istered in doses of one teaspoonful every ten or fifteen minutes, in a strong decoction of boneset tea. Commence at least one and a half or two hours before the expected attack of the paroxysm and continue till some time after it should have developed itself.

II.

REMITTING FEVER.

There seems to be quite a striking similarity between this and the Intermitting, at least in very many particulars. They are doubtless the result of the same cause, and have the same general types, yet differ in the degrees of their violence, and duration of their respective paroxysms. But in consequence of a decided modification of character, arising from the absence of anything like an intermission of the febrile phenomena, a corresponding modification of treatment becomes indispensably necessary for the successful management of this form, and this fact alone would constitute a sufficient reason, to bestow on each a separate and distinct consideration.

The symptoms which exist during the forming stage, are similar to those of the forming stage of intermitting or other fevers: such as languor, yawning and stretching, sense of weariness in the limbs, nausea, want of appetite, slight chilly sensations, costiveness, or at least an irregular state of the bowels. These continue for a longer or shorter time, when the attack is not unfrequently ushered in by a chill; in some cases pretty severe, in others less distinct. These chilly sensations, in many cases, are the first manifestations of deranged health. They are commonly alternated with flashes of heat, which gradually gain the ascendancy, and a higher or lower grade of fever is at length established, which is accompanied by a general aggravation of the symptoms, pains in the loins, back, limbs and head, increased in violence, a sense of fullness of the epigastrium and hypochondriac regions, with a sense of oppression in the neighboring parts, yellowish tinge of the eyes and skin, nausea, and frequently bilious vomiting, urine scanty and high colored, often tinged with bile, the pulse full and frequent, but not apt to be very hard; oppressed and

anxious respiration, skin dry and hot. These symptoms continue with a greater or less degree of force, for about 24 hours, when an abatement or remission occurs in their violence; a gentle moisture is apt to take place, over the face and upper portions of the body; the remission usually takes place in the morning, but during this period, (which lasts but a short time) the febrile heat does not entirely subside, the pulse remaining in a state of irritated excitement, with a certain degree of fullness and hardness. In other words the febrile phenomena do not entirely subside. Very soon, however, the symptoms of the previous paroxysm return, and pass through a period of time similar to that which was occupied by the first, when again a remission occurs, and thus a regular series of exacerbations and remissions follow each other, establishing periodic revolutions, which more frequently assume the double tertian type than any of the other types of intermitting fever. Sometimes, however, they take the quotidian form. The preceding description will enable any one to form a pretty correct conception of the nature and character of these cases, especially as they manifest themselves in mild and temperate latitudes. It cannot be denied, however, that they are subject to a vast variety of modifications, dependent upon the nature, as well as the intensity of the action of the causes which may give rise to them; likewise to the character of the constitution of the patient, as well as to the climate and the nature of the prevailing epidemic of the season; all of which influences impress their characteristic features to a greater or less extent on any given case of this complaint. A proper appreciation of all these circumstances will enable the practitioner to form much more rational conclusions and critical inferences, touching its nature and ultimate tendencies.

There is, perhaps, no form of fever which is subject to as great a variety of changes and fluctuations in the respective grades of its violence and mildness, as the one now under consideration. While in some of the more temperate latitudes we find it, at least at certain seasons, prevailing in a form so mild as scarcely to give evidence of any sensible impairment of the vital powers of the patient; we discover it, at the same time, in a form so malignant in some of the intertropical climates, and invading

the sanctuary of life with a rapidity so fearful as to produce well grounded apprehensions, that the pathway of its turbulent march will soon be marked by the graves of hundreds and thousands of those who have fallen speedy victims to its awful ravages. Even mild and regular remittents may assume an aggravated character, if suffered to go beyond the ninth or tenth day unchecked. In such cases the tongue becomes more completely loaded, being dry along the middle, with a thick brown fur; delirium is more apt to take place; there is a much higher temperature of the skin during the exacerbation; the skin also acquires a deeper yellowish color; the bowels more completely distended with wind, and tenderer to pressure; debility increases; the discharges from the bowels becoming watery and much more offensive, accompanied sometimes with retention of the urine and much restlessness.

The malignant remittents of hot climates are marked with symptoms manifesting a high degree of violence, the attack being ushered in usually with a short, and not very severe chill, which, however, is soon followed by an intense grade of reaction, which goes on to increase with fearful impetuosity, accompanied with extreme thirst, headache, pains in the loins and extremities, great constriction, anxiety and oppression in respiration, nausea, a sense of fullness and weight in the stomach. These symptoms continue for about 24 hours, and a remission takes place, which, in many cases, approximates the character of an intermission; but this ominous calm is destined to hold its sway but a limited period, and serves only as the precursor of a more awful and turbulent conflict between the disease and the vital powers. The eyes now become red, watery, and somewhat intolerant, in many cases, to light; the distress in the epigastric region becomes very severe and extremely oppressive, with constant inclination to retch and vomit. These continue some time and again suffer an abatement. There often appears a clammy perspiration during the subsidence of the more threatening symptoms, and, in this way, the disease continues to have its exacerbations and remissions, until it approaches to the point of a salutary crisis, or terminates fatally, which often happens between the sixth and tenth day, sometimes earlier, at others later. In the more advanced periods of the attack, the fever usually loses its remitting character, and assumes

more of the low continued typhoid type, with very great prostration and delirium. Sometimes the skin becomes cool, at others it has the peculiar hot character, called *calor mordax*, quick and irregular pulse, the urine dark, offensive, and sometimes suppressed, lips dark, livid and swollen, tongue dark-brown or black, and clammy, the eyes usually red, watery and somewhat sunken, the discharges from the bowels reddish, watery, dark-brown, offensive and bloody, sometimes very copious, attended with a tympanitic state of the abdomen, petechia and hemorrhages mark the approach of a fatal termination. The violence, danger, and rapidity of the progress of the case will depend very much on the manner of the commencement of the attack. If it be ushered in with symptoms of an aggravated character, the subsequent course will be correspondingly rapid, dangerous and violent. In the progress of these cases, there is noticed a very striking tendency to the manifestation of local inflammation in some of the organs and tissues of the body, at some seasons much more apparent than others, and exhibiting itself much more frequently in particular parts than in the various parts promiscuously, doubtless attributable to some inexplicable condition, in the nature of the cause, which gives rise to the attack. In consequence, however, of a great liability existing to the development of a deranged condition, in a prominent degree, of two important organs of the body, namely: the *alimentary canal* and the *liver*, the division of this disease into the gastric and hepatic modifications has very generally obtained, in the works of most of the systematic writers; a division which it may not be the best policy, on our part, to lose sight of entirely; although it must be confessed that this disease, as it appears in different climates and at different seasons, assumes almost every variety and shade of character, of which the human mind can form anything like a distinct conception. These known and acknowledged variations of character would tend largely to invalidate the propriety of the existing divisions of authors, but inasmuch as it would serve as a kind of basis, and facilitate the acquisition of a knowledge of the character of individual cases to retain them, it is deemed most proper, with a distinct understanding, however, that they are subject to an infinite variety of change.

The gastric modification is marked by the following phenomena: nausea and vomiting, sometimes a yellowish bile, a bitter taste, a yellow fur on the tongue, which often becomes dry, cracked and brown, or black, an entire distaste of food, and a total loss of appetite, a turbid, yellow urine, great weight, anxiety and oppression in the præcordia; bowels somewhat tender to pressure externally applied, pains in the loins and knees, also in the forehead, and often, when a more confirmed state of gastro-intestinal inflammation takes place, a red and fiery edge and tip of the tongue, and after the brown or black crust scales off, the whole surface of the tongue exhibits a smooth, shining, red appearance; the stools become watery and reddish, resembling the washings of flesh; difficulty of swallowing, and not unfrequently retention of urine.

The hepatic modification is indicated by an intense degree of febrile heat, early delirium, violent pains in the head, fullness and tension in the right hypochondriac region, with pain and oppression in the same, much irritability of the stomach, and frequent and rather forcible vomiting, without the ejection of bile, but a glairy mucus mixed with the materials that may have been taken into the stomach, yellow tinge of the skin and eyes; very often, in the more advanced period of the disease, a large quantity of black, pitch-like matter is discharged from the bowels. There can exist but little doubt that the liver, in this case, is in a state of great sanguineous congestion, and, of course, in a very torpid state, evinced by the absence of bile in the discharges, the clean state of the tongue, torpor of the bowels, the color of the skin, as well as by the *excessive and continued retching and vomiting*.

The black bilious matter, which is often copiously evacuated, towards the close of this form of remitting fever, often may be regarded as a kind of healthy, critical evacuation, for it is almost universally followed by a decided abatement of the urgent symptoms of the case.

There is no feature more prominently conspicuous in the nature of remitting fever, than the constant tendency there is to the development of a high degree of irritation, or inflammation in the mucous membrane of the stomach and bowels. Indeed, so universal was this feature, that the celebrated Broussais adopted the sweeping conclusion, that there was a state of gastro-enteritic

inflammation in all cases of this kind, in a condition of active and complete development; and upon this great pathological hypothesis, he based the doctrines, mainly, of the physiological school, which have exercised an extensive influence on the fortunes of medical science for the last thirty years. However plausible and ingenious the arguments may be to sustain this doctrine, there can be no reasonable doubt that a state of high irritation has often been mistaken for confirmed inflammation, and that they have failed to make those distinctions between these conditions, which can be readily drawn by that class of pathologists, whose mental visions are not clouded and paralyzed by the absorbing behests and despotic sway of any one special opinion, which seizes, with avidity, all that appears to sustain, and rejects, sometimes without examination, whatever appears to come in conflict with it.

Remittents may change their course, so as to become intermitting. In the same manner, intermittents may change to the remitting form of fever. The latter, however, is the most frequent.

It occasionally happens that other forms of disease are developed, or rather seem to follow as consequences of a long continued prevalence of this disease. Among those which have been known thus to follow, may be enumerated hepatitis, neuralgia, epilepsy, pleuritis, dropsy, dyspepsia, paralysis, pain, swelling and enlargement of the joints, chronic forms of rheumatism, mania, chorea, &c., &c.

Causes. Under this head it seems only to be necessary to refer the reader to what have already been enumerated as the principal causes of intermitting fever, and among these we need look but little further than malaria as being the great common source, and, indeed, almost the only cause of these two forms of human malady so universally and extensively prevalent. Some other causes are occasionally instrumental in giving rise to this complaint, such as worms and morbid accumulations in the alimentary track.

Eclectic reformed treatment. So far as regards the indications to be fulfilled, in the treatment of any given case of this complaint, there can be but one opinion among all medical men, who are adequately acquainted with the laws by which the human

body is governed in a state of health and disease. But among these guardians of the public health, on the subject of the proper means and modes of fulfilling the required indications, much diversity of opinion does, at the present time, unquestionably exist, and will, doubtless, continue to be cherished.

The proper indications are, to remove all morbid accumulations from the stomach and bowels, restore the equilibrium in the circulation and excitability of the system, excite the various organs to the due and proper performance of their respective functions, more especially the skin and the capillaries, which are in a state of torpor and inactivity.

In a vast majority of the cases of remitting fever, it would be proper to commence the treatment by the administration of an emetic, composed of equal parts of *lobelia inflata* and *sanguinaria canadensis* in the form of *acetous tincture*, prepared by adding a quart of vinegar to an ounce each of the foregoing articles, in a state of fine powder. The emetic tincture should be commenced in doses of two teaspoonsful, and increased one teaspoonful every ten or fifteen minutes, until free, full and copious vomiting, as many as three or four times, is produced, with a pretty distinct general relaxation and copious moisture of the skin. The emetic should be mixed in a little tea of the eupatorium perfoliatum or chamomile flowers, which should be drank freely during the operation. The symptoms which more particularly indicate the use of an emetic, are headache, a furred state of the tongue, nausea, and occasional vomiting of a muco-bilious matter, bitter taste, a yellowish coat, and a sense of load and oppression in the region of the stomach. Provided you can have the selection of the time, it will be found that the commencement of the remission will be the best time for the administration of the emetic; if given then, the free, full and proper effects of its operation will be much more readily produced and exercise a more salutary influence, producing a more perfect relaxation, breaking up the chain of morbid phenomena much more completely, and in many cases, converting a slight remission into a complete intermission. If, however, the use of an emetic is attempted during the rise of the exacerbation of fever, the practitioner must be prepared to anticipate increased difficulties in producing the desired operation, and

as a matter of convenience, will find it necessary to occupy a much longer time in its administration, and give a larger quantity of medicine. A much greater degree of spasmodic constriction has to be overcome, which affords, at once, a satisfactory solution of the attending circumstances of such a case.

Some two or three hours after the operation of the emetic has ceased, and the stomach is completely calmed, as a general rule, a purgative will be found highly useful to carry off the morbid and vitiated contents of the bowels; and nothing seems to answer this purpose better than the anti-bilious physic, in doses of two teaspoonsful mixed in a little water and vinegar sweetened. The water should previously be added to the powder very hot, and then allowed to stand till nearly cold, when the vinegar and sugar should be added, and the whole well mixed by stirring together, and taken at once. If this should fail to operate with sufficient energy in the course of two hours, then an additional teaspoonful may be given in like manner. However, it very rarely happens that the first does not produce the desired operation. This anti-bilious purgative is perhaps one of the best forms of cathartic medicine known to the medical profession, and is admirably adapted to the fulfillment of the purposes of a cathartic, being safe and mild, yet uncommonly brisk, energetic and efficient in its operation, void of any danger, especially in the earlier stage of disease, of developing anything like gastro-intestinal irritation or inflammation, or of producing too great a degree of prostration of strength; the system speedily recovering its previous energy, and in very many cases with decidedly increased powers to perform its varied functions.

Among the most important indications requiring to be fulfilled may be mentioned the production of an equal state of the circulation and excitability, by bringing about a free, uniform, equal and genial perspiration, an effect highly desirable in the treatment of any form of fever, but more especially so in the present. With a view of producing this desirable result, let the patient have his feet soaked thoroughly for fifteen or twenty minutes in weak warm ley water. After being put in bed, let the whole surface be thoroughly bathed by means of a soft flannel cloth or sponge moistened with the same. This bathing process should be carried

out by means of brisk and active friction over the whole extent of the body, with an additional degree of force and energy along the course of the spine, and in the palms of the hands and soles of the feet. The whole surface of the body should be repeatedly bathed over in this manner, with the view of producing a sufficient degree of relaxation, to favor the occurrence of a perspiration, to relax the constricted capillaries, to remove from the surface that mass of impure, sebaceous, concrete and irritating matter, which is lodged so abundantly on the skin in cases of this kind, paralyzing the superficial capillaries. In the meantime the patient should drink freely of warm pennyroyal, catnip, balm or peppermint tea, and take once every half hour (after the skin gets a little soft and moist,) one teaspoonful of the *sudorific tincture*, until the patient shall have been in a free, full and copious perspiration from one to three hours. Let the patient be constantly bathed so long as there is any difficulty in procuring a sweat. After the patient gets into a free state of perspiration that process may be continued at pleasure, by the use of diaphoretic teas alone.

It is a matter of no small consequence to select an appropriate period with regard to the paroxysm, to ensure success. As a general rule the period of the decline of the febrile exacerbation, or rather the approach of the remission, is the time that the effort to produce a perspiration should be made, provided the practitioner can conveniently command that time for this purpose. Such is the condition and state of the sensibilities of the system that all medicines appear to produce their appropriate effects more readily, when there is a tendency to relaxation. And as such a tendency without a doubt exists, whenever a remission is about to occur, we have no difficulty in accounting for the increased aptitude that exists in the human constitution to be operated on by medicine with more facility. Emetics, as well as cathartics, operate with more force and effect during the remissions or intermissions of fever, than during the accession of the paroxysms or rise of the exacerbations.

When there is much restlessness, the *diaphoretic powders* may be advantageously substituted in the place of the *sudorific tincture*.

If used, these powders should be given in doses of from five to ten grains once an hour to adults, in connection with some of the diaphoretic drinks already enumerated.

The common *sweating powders*, composed of equal parts of hydrastis canadensis, sanguinaria canadensis, myrica cerifera and sumach berries, well bruised and mixed, is also a good medicine. To an ounce of this compound add one quart of boiling water and simmer for half an hour ; strain and sweeten ; take in doses of two or three tablespoonsful every fifteen or twenty minutes, until it produces the desired effect, which should be kept up as long as may be desirable. In many cases it may be given in larger doses, and continued as long as it may be deemed useful to keep up the perspiration.

The production of a perspiration in the manner proposed, by first cleansing the surface and restoring more permanently the functions of the skin, is productive of incalculable advantage in the treatment of fevers, and should never be neglected by the practitioner. When we take into consideration the vast extent of this tissue, and perceive that it not only covers the whole extent of the body externally, but connects itself with the internal surfaces in the shape of the mucous membrane, and thus lines the secretory surfaces of nearly every important gland in the body ; and when we further reflect on its extended range of powerful sympathies, and the commanding control which the healthy or unhealthy condition of this tissue exercises over the respective capacities of other parts to perform their appropriate functions, we cease to be surprised when we find so much depends on its healthy or unhealthy condition, in the fulfillment of the requisite indications in the treatment of nearly every form of disease, either acute or chronic.

In the further prosecution of the treatment of remitting fevers, it must be recollected that the practice should be varied with a view of meeting the different symptoms of the case as they may present themselves, being careful at all times to form a correct appreciation of their nature and tendency, and adapt the treatment accordingly.

The preceding means and measures, changed according to the attending circumstances, will ordinarily be found sufficient for the successful treatment of these cases, when vigorously and judicious-

ly prosecuted in their early stages, with the additional use subsequently of such a course of restorative and tonic measures, as may be best adapted to the completion of the cure.

It occasionally happens, however, that even a more vigorous and effective course of evacuation is required than has already been suggested. In such cases I have found nothing to answer the purpose so well as the pulverized root of the *podophyllum peltatum* and anti-bilious physic in the proportion of equal parts; say, take twenty-five to thirty grains of each of the articles mentioned, mix and add two-thirds of a teacupfull of hot water and a tablespoonful of vinegar, sweeten and mix thoroughly, and let the patient take the whole at once. This dose operates with a singular degree of efficiency and very often cuts short at once the most formidable attacks of this complaint. Its operation usually is that of an emeto-cathartic. Its cathartic operation often begins first, but it is generally quickly succeeded by its emetic effects, which are apt to continue several hours, during the whole of which time the patient is much affected with a sense of nausea, being apparently just on the point of vomiting, and there is much apparent relaxation and prostration of strength. The purgative operation continues occasionally to return during the vomiting, and usually for several hours after the vomiting ceases. Such is the degree of relaxation that the patient often sweats freely throughout the whole period of the operation of this powerful revulsory measure. I have often known one dose of this medicine to prove entirely sufficient to arrest at once some of the most violent and rapidly progressing attacks of the remittent form of fever I have ever seen. It would seem that some little precaution is necessary for those who would propose to use it. Its use should be directed in the earlier stages of the disease to patients who have moderately strong constitutions, and during those seasons in which there is apt to be a torpid, inactive state of the liver and bowels.

Persons far advanced in disease, as well as very old, weakly or debilitated persons, should by no means venture on its use. It is a medicine of Herculean powers and should not be incautiously used. I do not now remember ever to have seen any bad consequences result from its administration, but can readily conceive

it might prove too active in such cases as I have just referred to, and perhaps in some others which manifest an unusual degree of liability to the development of gastro-intestinal irritation or inflammation.

The proper use of tonics and stimulants constitutes an important part of the necessary treatment in these cases, and should by no means be overlooked too long. In some cases a much earlier resort to their use becomes necessary than in others. The milder tonics should be tried at a pretty early stage of the treatment, such as the *vegetable wine tincture*, infusion of *eupatorium perfoliatum*, with equal quantities of *sumach berries* and *hydrastis canadensis*, taken in doses of two or three tablespoonsful at intervals of from one to two hours. If the *vegetable wine tincture* is used, a tablespoonful once an hour should be given during the remission. The *ague bitters* mentioned under the head of intermitting fever may be used, subject to the same rules of administration as there laid down, commencing them with the commencement of the remission. The practitioner can readily determine whether a patient is in a condition to be benefited by the use of tonics and stimulants, by watching their effects for a short time. If the hardness of the pulse as well as its frequency be increased, and the febrile heat is augmented, difficulty of breathing and oppression of the lungs greater, a sense of tightness and constriction about the stomach, and increased restlessness, with flushed countenance and headache, follow as consequences of the use of tonics and stimulants, it follows pretty conclusively that the patient cannot derive much if any benefit from their use. But on the other hand, if the volume of the pulse should be increased without a corresponding increase of hardness, the skin grow moister and softer, the breathing become fuller, freer, and easier, it shows they are exerting a beneficial influence, and they should be continued.

Modifications of Remitting Fever. There exists a constant tendency, during the progress of remittents, to the development of certain modifications and complications of this affection, which influence to a greater or less extent, the character of the original attack. Among these may be mentioned gastro-intestinal inflammation, inflammation of the brain, local pain, or congestion and spinal irritation.

It was remarked in a previous part of our subject, that the diathesis of remittents is essentially inflammatory, and that no part of the system is so liable to become the seat of that inflammation as the mucous membrane of the stomach and bowels. The existence of this inflammation, in its full and complete form, is comparatively a rare occurrence; when fully formed, the previously existing fever loses its remitting character, and assumes a low typhoid grade; the abdomen becomes tympanitic and tender upon pressure; the tip and margin of the tongue assume a fiery redness, and perhaps the central part of the tongue also, the remainder being covered with a thin white coat, which, when it passes off, leaves the whole surface of a fiery redness; greatly increased aptitude to be affected by medicine, so much so that small doses operate with violence and force; increased heat of the skin; delirium more constant; restlessness and tremors. This is a very critical condition, and requires to be accurately recognized and treated with an unusual degree of circumspection and caution, inasmuch as very slight errors may lead to the most disastrous and fatal results.

This condition may be produced by a variety of causes, such as the too long retention of the morbid and vitiated contents of the stomach and bowels, too strong stimulating articles of food and medicine, ice-water taken too freely when the system is in a state of relaxation and debility. But by far the most prolific cause of this very unpleasant pathological state is a severe, poisonous, harsh and drastic course of medication, directed mainly to the stomach and bowels, without adequate attention to the surface.

The treatment of this case should be very carefully conducted, as before suggested, by the use of a proper course of counter-irritating measures, such as mustard plasters, fomentations and poultices of an emollient character; soaking the feet and bathing the body, freely and frequently, with weak ley water and mild and unirritating injections. The mucilages and neutralizing physic form a suitable preparation for this purpose. The bowels may be gently opened by the neutralizing physic, given in doses of from one-third to a half teacupfull of the infusion or decoction prepared in the ordinary way, once in a half hour, until it

operates moderately. Throughout the whole course of the treatment of a case of this kind, mild mucilaginous drinks should be taken freely, such as flax-seed tea, marshmallows or the mucilage of the *ulmus fulva*, with gentle, very mild and unirritating diaphoretic teas, used to the extent of producing moderate moisture of the skin.

In the event of the development of inflammation of the brain, in the progress of a case of remitting fever, which would be indicated by a red, inflamed appearance of the eyes, intolerance of light and sound, stupor, throbbing of the carotid and temporal arteries, costive state of the bowels, pain in the head, and dilated or contracted pupils; the feet should be immersed in hot water, and the legs bathed thoroughly, and a large and very active dose of the hydragogue purgative medicine should be promptly given. The purgative should be composed of equal parts of antibilious physic and *cremor-tartar*, and repeated in the course of two hours, if the first dose does not operate freely. Sinapisms to the soles of the feet, inside of the thighs and abdomen, cold applications to the head, bathing and soaking the feet often.

In any case of pain or local congestion, a thorough and active course of counter-irritating measures should be pursued, such as strong stimulating liniments, mustard plasters, and the frequent and repeated use of bitter herb fomentations, together with such measures as are best calculated to produce the desired equilibrium in the circulation and excitability of the system.

Spinal irritation or inflammation, when present, should be treated very much in the same manner, with perhaps the additional use of scarifying and cupping, and in obstinate cases the use of the irritating plaster; more especially those that are of a chronic nature, which will not readily yield to milder means.

III.

CONTINUED FEVER.

Continued Fever is a term applied to those forms of fever which have no very evident remissions or intermissions, and inflammatory, simple, continued, and typhus, are usually classed under this head. However, strictly speaking, there is perhaps no form whatever, which does not manifest some evidence of remission and exacerbation, at some period during the twenty-four hours. A tendency to remission is more especially noticed in the morning, and a similar tendency to exacerbation in the afternoon or evening, as a general rule.

The divisions of fever into the *sthenic* and *asthenic*, or *inflammatory* and *typhus*, seem to have a natural foundation, and there would be no impropriety to still recognize this division. The inflammatory is attended with a phlogistic state of irritated vascular excitement, without any very striking impairment of the vital energies. Asthenic or typhus is attended with a lower grade of action, and more unequivocal signs of debility, as the fundamental pathological feature, with a more prominent impairment of the vital energies than exists in the inflammatory. However, there is perhaps no case of fever in which there is not an evident impairment of the vital powers, to a greater or less extent. The divisions into inflammatory and typhus, do not convey to the mind of the reader, proper impressions, because it would seem to imply that one of these was liable to be frequently complicated with inflammation, and that the other was not obnoxious to the same pathological state ; whereas, in reality, local inflammation is very liable to be developed in either of these forms at some period or other of their progress.

The inflammatory is more particularly characterized by such

symptoms as tend to show the existence of inflammation, such as a full, vigorous and hard pulse, with quickness and tension; the blood, when drawn and allowed to remain at rest a short time, soon separates into its constituent parts, becomes cupped and exhibits a sizzly coat; it is thicker, and contains a smaller quantity of serum than in health; slightly furred tongue; urine high colored and small in quantity. The attack is ushered in usually by rigors, more or less distinct in the commencement, the surface becoming, afterwards, intensely hot, the face turgid and flushed, eyes suffused and sensible to light, mouth and throat dry, thirst, pain in the head, bowels torpid, skin dry and harsh, and often acuteness of hearing.

This disease is not apt to pursue a tedious course, seldom continuing longer than the ninth day, and in some cases not longer than the fifth or seventh. It, however, in a few cases, has continued a much longer time. Although a form of continued fever, with evident morning remissions and evening exacerbations, may be noticed, if critically examined.

This form of fever, when it terminates favorably in resolution, is accompanied by a general, free and gentle moisture over the body, accompanied, also, by that necessary concomitant, of an increase of urine, with a reddish or pale sediment in it, and in some instances, a critical evacuation by hemorrhage from the nose takes place, tending to a favorable termination. This evacuation is more apt to be salutary, if a gently moist and soft state of the skin takes place at the same time. During the progress of this form of fever, there is a constant liability to the development of inflammation of some particular organ of the body, for it may, with propriety, be remarked that there is scarcely any period in the life of an individual, in which there may not be found an increased susceptibility to inflammation in some one part, over and above the rest, so that when a condition of the general system, in any degree favorable to the production of this state, exists, topical inflammation is very apt to arise.

There is not so much liability in this form of disease to inflammation of the brain, and consequently not so much tendency to an oppressed and prostrate state of the vital powers, as there is in typhus; when, however, the brain and nervous system do be-

come involved, the features of the case will more closely approximate those that characterize nervous and typhoid cases.

The *causes* of inflammatory fever are very numerous; such as atmospheric vicissitudes, cold, the use of stimulating articles of food and drink, high degree of heat, excessive corporeal exertions, sudden suppression of customary evacuations, blows, injuries and mental anxieties, and the operation of the passions, as well as excesses of every description. The electrical changes in the condition of the atmosphere doubtless play an important part in the development of inflammatory fever. It has been observed as a general fact, that the prevalence of easterly, or north, or north-western winds were, especially, well calculated to produce inflammatory attacks of fever. A high, dry, cold and piercing state of the atmosphere is very apt to produce this modification of fever, and it is not unfrequently found to prevail in mountainous districts, which are quite free from miasmatic diseases, and may otherwise be considered healthy. The peculiar caste of any attack of fever, doubtless, depends more on the state of the patient's system at the time the cause produces its morbid influences, than the nature of the cause itself; indeed, the same cause may operate extensively and produce a great variety in the shades of attacks of the same forms of disease, in the same vicinity, or even in the same family, not only in reference to their respective degrees of violence, but also in regard to their peculiar character.

We are no longer permitted to doubt that the successive changes that take place in the qualities of the blood, in consequence of the impaired condition of the various surfaces of excretion, thereby causing a retention of a large portion of excrementitious material, which, of course, serves to perpetuate and aggravate the existing derangement of vital action, by destroying that beautiful and harmonious equilibrium and relation that exists between the excitability of the solids and the capability of the fluids to produce appropriate impressions on the solid tissues of the system, play a very important part in the pathology of fevers of every other description as well as the inflammatory species. A just and equal balance should be maintained between absorption

and exhalation, also, to prevent any material deviation from the healthy standard of action.

Although the inflammatory may be regarded as a somewhat severe form of fever, yet under a judicious course of treatment it seldom proves dangerous.

When hemorrhage takes place from the nose at an early stage of the disease, accompanied at the same time with a moist state of the skin, a pale and sedimentous urine, the case may be regarded as having taken a favorable change, and will most probably result in the reëstablishment of health in a short time.

The *synochus*, or simple continued form of fever differs from the preceding variety, in the particulars that it does not manifest that intense grade of inflammatory excitement which marks the attacks of the one already described. Neither is that permanency of vital resistance which characterizes the inflammatory, so distinctly appreciable in this form of fever. Nevertheless, there is in this variety, as indeed in nearly every other, a tendency to the development of local inflammation, in all cases of lengthy duration, in a more or less active degree, being much more observable in some than in others, proportioned of course, in this respect, to that infinitude of variety in the respective susceptibilities of the human system to be affected by the various causes of disease, as found among those who may have come under the influence of this species of fever.

Among the causes which play an important part in the productions of this modification of fever, cold and atmospherical vicissitudes doubtless are most frequent in their operation. Morbid accumulations in the alimentary track, producing gastric disturbances, are also occasionally chargeable with giving origin to it. Cases depending on cold are more particularly marked by catarrhal symptoms and seem to be necessarily more distinctly of a phlogistic character, especially during the earlier stages of the attack; while those that are clearly attributable to the influence of morbid accumulations in the alimentary track, are attended with nausea, sometimes vomiting, want of appetite or even disgust of food, furred tongue, icterode tinge of the skin, and generally, a lower grade of vascular excitement, and other symptoms indicating hepatic and gastric derangement.

The most common form of this disease commences with the symptoms which usually characterize the incipient stages of other forms of fever, and is in many cases a tedious and obstinate form of indispotion. The symptoms are, a feeling of restlessness, weariness of the limbs, a sense of tension over the epigastric region, confusion of thought, inability to fix the attention, anxious and oppressed respiration, nausea, and not unfrequently vomiting, quickness and frequency of pulse, very indistinct chilliness, alternating with flashes of heat. These last symptoms often continue for some time before the febrile reaction is fully established. The pulse then becomes fuller and harder, and the skin assumes a redder hue; sometimes dull, heavy, throbbing pains are felt in the limbs, head and back; the fur on the tongue being first rather whitish, subsequently becoming darker and thicker, and in the still more advanced period, the coating of the tongue peels off, and leaves a red and sometimes a smoother surface; bowels usually, in the earlier stage, constipated; urine becoming red as the attack advances; in many cases intolerance to light and sound, particularly in those cases in which the brain is involved in a slight degree of inflammation. In such cases the carotids beat with energy, and such cases are accompanied with slight delirium.

These cases usually arrive at their crisis in from seven to fourteen days, and tend either to a fatal or favorable termination. The symptoms which show danger are, almost constant delirium; dry and foul tongue; dilated pupils; great debility; cold, clammy sweats; hurried breathing; black sordes about the mouth; subsultus tendinum and picking at the bedclothes.

Those indicating a more favorable tendency are such as follow a return of the secretory powers of the skin and kidneys to a more natural state; pulse becoming fuller and less frequent; urine depositing a sediment of a reddish cast; breath fuller, freer and easier; tongue cleaning and a return of the natural appetite. Authors usually describe several varieties of continued fever with much particularity and precision; but inasmuch as these are all modifications of the same great type of disease, dependent for their difference of form upon the nature of the constitutions of those who are the subjects of attack, as well as upon the character of causes which are incessantly undergoing important modifica-

tions, from the influence of that endless variety of changes which have ever taken place, and must continue always to result, in the conditions of the material world, new forms and modifications of disease must, in the very nature of things, take place as legitimate consequences of the successive revolutions in the condition and qualities of matter. The intelligent practitioner must be duly prepared to anticipate these differences of form, and make such corresponding modifications of treatment as may be suggested to his mind by a careful consideration of the nature and character of the causes concerned in producing these differences, as well as from the more satisfactory evidences afforded by an enlightened experience.

Typhus differs from the other modifications of continued fever chiefly in the earlier development of evidences of general derangement of the sensorial functions; in the more gradual accession of the attack, in the great indisposition to bodily and mental effort of every description; in the earlier and more certain delirium, or at least symptoms showing an approximation to that state, and in the mental depression and sullen gloominess of countenance, and in the inclination to stupor and sleep.

Eclectic Reformed Treatment. So far as it regards the measures of remediate management in the treatment of the usual forms of continued fevers, it will be found that moderately free, effectual evacuations through the medium of the stomach, bowels, skin and kidneys will prove highly useful in the restoration of the patient to a state of health. The particular power of these several operations will depend on the special circumstances of each individual case. As a general rule, one or two pretty thorough doses of emetic powder, given in a strong infusion of eupatorium perfoliatum, repeating the doses of from a half to a teaspoonful of the powder every 15 or 20 minutes, until the patient shall have vomited as often as four or five times very freely, and it will be found that in many cases it will be of the first importance to continue the vomiting for four or five hours, especially in those cases that manifest an extreme degree of obstinacy. This can easily be done, without incurring any risk whatever of prostrating the patient too much, by giving the doses at longer intervals, and in smaller quantities than we usually administer them, in the treat-

ment of cases requiring the speedy effects of this class of remedial agents. I have very frequently administered the acetous tincture of *lobelia inflata* and *sanguinaria canadensis* in small doses of one or two teaspoonsful every half hour, mixed in some warm infusion, such as catnip, balm or sage, for half a day or longer, at a time, with the very happiest effects, and in this way effectually controlled many of those cases, which seemed to exhibit a peculiar degree of obstinacy.

The importance of active hydragogue cathartics should by no means be overlooked; they should however be devoid as a general rule of drastic properties. Anti-bilious physic one part and *cremor-tartar* two parts—this mixture makes one of the best hydragogue preparations now known, and should in these cases of continued fever be administered in doses of from two to three teaspoonsful to an adult, dissolved in one third of a teacupful of warm water, and repeated in smaller doses, provided the first does not operate thoroughly in two hours. This medicine may be repeated in two or three days, provided there arises a necessity for the repetition of purgatives, which is very generally the case. Should there occur in these cases any thing like a high degree of irritation or inflammation in the mucous membrane of the stomach and bowels, then the neutralizing preparation would be the preferable form of medicine to be used as a gentle purgative. This laxative would be more especially indicated, if there were any indications of the presence of an acid in the alimentary track.

Frequent bathing with the alkaline wash is very desirable, more especially in connection with attempts made to produce perspiration by the administration of sudorific or diaphoretic medicines. Nothing perhaps so effectually tends to insure the success of an attempt than this simple though remarkably efficacious measure. It would seem that beneficial effects in these cases do not arise merely from the well known tendencies of alkalies, when used either internally or externally, to prevent the development of inflammation, by modifying the inflammable elements of the blood, but by effectually combining chemically with that sticky, tenacious, oleaginous, concrete substance, which is found on the skin, as the residuum of perspirable matter, which exerts a paralyzing influence on the action of the capillary system of blood vessels,

and, through the medium of sympathy, produces a similar state of inaction on the internal surfaces of secretion. The beneficial effects of alkaline bathing must at once be very apparent to all who are acquainted with the intimate relationship that exists between the condition of the skin and the various internal secretory surfaces. The mutual dependence of the one on the other for their capacity to perform their appropriate functions is strikingly manifest as seen in the different varieties and shades of disease, when the condition of these parts is examined. Perhaps I could not more clearly illustrate the controlling power of this measure of bathing, in the treatment of the continued forms of fever, than to relate the circumstances of the treatment of an unusually obstinate case which occurred in the vicinity of Worthington in 1832. Mr. W., attacked with continued fever, was treated ineffectually for two weeks or more by the use of all the means generally found most effectual in the management of similar cases. In fact, this case manifested an unusual degree of obstinacy in resisting the effects of emetics, cathartics, diaphoretics, diuretics, sudorifics and the usual bathing means. It was finally decided on trying the virtues of bathing on a more extended scale than usual, and, for the purpose of testing this measure fully, I concluded to apply it myself; taking equal parts of weak ley water and common whisky, I commenced and went regularly over the whole of the patient's body, making use of brisk frictions by means of soft flannel cloths moistened with the liquid. The process was industriously continued for 10 or 12 hours, or the whole of one night, and resulted in filling the pulse, making it softer, and completely subduing the existing fever, so that the patient was promptly restored to a state of health, without the use of any additional means.

IV.

TYPHUS FEVER.

This is one of the forms of continued fever which prevails more especially in temperate and northern latitudes. Its nature and character have long been the subject of curious and interesting research, and a variety of opposite and conflicting opinions have been entertained by many of those who seem to have been the most careful and critical, in their researches respecting its nature and the character of the cause or causes concerned in its development.

This conflict and diversity of opinion has not been confined to its nature alone, but its proper treatment has been a fruitful theme of dispute among medical writers and practitioners. Not a little testimony in favor of each of the leading plans of medication has been adduced by their respective advocates, and urged with an unusual degree of warmth on the attention of the profession.

The term typhus has been applied to a species of fever which is capable of propagating itself by a peculiar contagion, which is said to be the principal cause concerned in its production. It is characterized, in the well formed stages of its proper development, by no inconsiderable degree of torpor of the sensorial functions, much indisposition to bodily and mental effort, delirium and much prostration of strength. It commences with symptoms very similar to those that are found in the initial stages of common continued fever, but soon the characteristic features are developed, leaving no doubt on the mind of its true nature.

It should however be distinctly borne in mind by the reader, that many of the lower grades of intermitting, bilious remitting, as well as common continued forms of fever, are liable to assume the typhoid character, but they should not on this account be regarded as cases of typhus. The critical investigator, the profound

and accurate observer, will find no difficulty in making the proper distinction. To facilitate the acquisition of a proper knowledge of this disease, systematic writers have with much propriety divided its symptoms into four stages or periods. The first, the forming or premonitory stage, is marked by a sense of languor or weariness of the whole body, tremor in the muscular motions, some loss of appetite, slight nausea, confusion of the mind, giddiness of the head, a feeling of general soreness, much disinclination to either bodily or mental effort. Sometimes these symptoms exist in so slight a degree as scarcely to attract the attention of the sufferer. In such cases, it not unfrequently happens that the premonitory stage of the disease continues a longer period than six or eight days, the time usually allotted for the continuance of this stage, when the stage of *invasion* is ushered in by distinct but slight chilly sensations, with flashes of heat in alternation with each other, a total want of appetite, or rather disgust for every kind of food. Nausea is increased and often vomiting, furred tongue, a quick, small, and somewhat irregular pulse, increased depression of the powers of the mind, as well as the physical energies, a confused state, heaviness or giddiness of the head. This stage generally lasts from six to twelve hours, when the third stage, or stage of excitement comes in.

This stage is marked by a considerable increase in the febrile symptoms, the face becomes more or less flushed, the skin dry and hot, pulse increases, the tongue is covered over with a fur, and there is a slimy state of the mouth, the bowels usually costive but often easily moved, urine small in quantity and usually high colored, the skin is dry and husky, the patient becomes restless, peevish, and some anxiety is depicted in the countenance, giddiness increases, mouth becomes dry and parched; very often catarrhal symptoms are noticed about the third day of this stage, such as suffusion of the eyes, slight inflammation of the fauces, and some oppression in the respiration, and often a slight cough, and a little difficulty in swallowing, a stunned state of the sensorial functions, the patient feeling as if he was under the influence of some narcotic, the indisposition to bodily and mental effort more strikingly noticed than at any other previous stage of the disease, a peculiar exantheme or eruption makes its appearance, usually

about this time, and is considered by many as essential to the full development of the disease, an opinion which we may be permitted to doubt. Pains are felt in the loins, back and extremities, to a greater or less extent; delirium is often noticed during this stage; the movements of the patient are slow and tremulous; he seems to have an aversion to giving his attention to any subject, and when interrogated often gives short and peevish answers. This stage lasts about a week, when the stage of collapse is developed, which is characterized by a general subsidence of the febrile and inflammatory symptoms of the previous stage, and symptoms indicative of great prostration or sinking come on, such as sinking of the pulse, the gums, tongue and teeth become covered with black sordes, in many cases the teeth and lips not unfrequently encrusted with the same, low muttering delirium, the stunned and confused state of the sensorial functions seem to be much increased, often much difficulty of hearing and confusion of thought, very tremulous motions, patient not unfrequently slides down in the bed, tender and swelled state of the abdomen, biting heat of the skin, diarrhoea not unfrequently occurs, hiccough and sometimes involuntary discharges, and in very bad cases dark or petechial spots or blotches on the skin, subsultus tendinum, coma, cold and clammy sweats, and death; but, when this stage tends towards a favorable termination, a gentle and uniform moisture on the skin, uniform warmth on the surface, sedimentous deposit in the urine, a slow subsidence of the disagreeable symptoms of this stage, until it results in health.

The usual period of the stage of collapse is about seven days; sometimes longer, at others shorter. The progress of convalescence is always slow, both in regard to the condition of the body and mind.

Typhus is, however, subject to a variety of modifications and complications, producing, of course, a deviation from the symptoms which have already been detailed; and among these may be mentioned the development of inflammation of the brain, lungs, stomach, bowels, peritoneum, liver, spinal cord, and several other parts. Superadded to the symptoms already enumerated, would be those symptoms which would necessarily result from the existence of inflammation of any of these several parts; that is to

say, if it were a case of typhus complicated with inflammation, you would have the symptoms which are usually present in pneumonia-typhoides, and so on with the other cases.

Cases complicated with spinal inflammation are marked by pain along the course of the spine; sometimes the extremities are affected with pains, with somewhat irregular and difficult respiration, and an uneasy sensation about the pit of the stomach.

Systematic writers have noticed a variety of typhus which they call *congestive*, with what especial degree of propriety I am at a loss to understand. That embarrassment is by no means diminished, when we recollect the fact that congestion is the predominant condition in nearly all cases of typhus. It may be, and doubtless is true, that some cases are much more distinctly congestive than others; still, however, we may at all times be permitted to doubt the propriety of the appropriation of the term congestive to any particular modification of any disease whatever, to the exclusion of all others, when, indeed, congestion is the essential pathological condition of the class arranged under that head, and marks to a greater or less extent every case of the disease that occurs. On this ground, we must be allowed to doubt the utility of such a division. When, however, we meet with cases which are strongly congestive, they are marked by symptoms of congestion in a corresponding degree, viz: by a want of reaction, a sense of heat internally, generally oppression of the whole system, lassitude, weariness, the pulse small, struggling and oppressed; the eyes usually dull, vacant and watery; weight, pain and vertigo in the head; diarrhoea; the patient appears as if in a partially stunned state. Petechial, or extravasated spots, colliquative diarrhoea, and hemorrhages from the different outlets of the body, are apt to occur in the more advanced periods of the disease.

Cause. So far as it relates to the cause of this disease, many conflicting opinions have, at different times, been maintained by the authorities; but of these, two seem to be more particularly prevalent than others. One of these is, that typhus may be the result of the ordinary causes that are concerned in the production of intermittents and remittents, more especially where these causes operate on a system already depressed, the vital

energies of which are already in a prostrated condition. But the form of fever resulting in cases of this kind is more especially of the low typhoid kind, than of true and genuine typhus. The reader should constantly bear in mind the fact, that typhoid and typhus fevers are by no means identical.

The other opinion on this subject may be regarded as the prevalent doctrine, resting on a much more substantial foundation, and commending itself to the confidence of the professional man with much more force and effect. This opinion attributes typhus to a specific morbid agent, which is generally agreed to be of a contagious nature, but which does not possess that virulence of character which many of the other contagions have, insomuch that it not unfrequently happens that individuals who have long been much exposed to the action of the cause, entirely escape the effects of the disease. But, on the other hand, we often discover, when once this disease is introduced into any particular family, it affects all the members of the household sooner or later, to a greater or less extent, and is also very apt to spread quite extensively in any given neighborhood, when once introduced. Against the doctrine that it depends on causes the same as intermittents and remittents, we mention the fact that it seldom prevails simultaneously with these diseases, nor indeed in similar localities, nor during the same seasons.

All these facts would go strongly to prove the dissimilarity in the nature of the cause and the manner of its propagation. In addition to this array of evidence, we might adduce many other facts showing that these cases are, by no means, to be regarded as having a similar origin. Typhoid types of fever may abound in any vicinity in which intermittents and remittents prevail, and simultaneously with these forms of fever, or these may, after having preserved their distinctive characteristic features as intermittents and remittents, for a considerable length of time, degenerate into the typhoid form from the peculiar state of the constitution of the patient, or from the especial manner in which the cause may operate. But we again reiterate the statement already made, that there is a radical and essential difference in the nature, tendency and ultimate effects of cases of *typhoid* and *typhus* fever, which is very appreciable to accurate and acute observa-

tion. It would seem that the nature of the cause, concerned in the production of typhus, differs from that which is calculated to produce the other forms of fever in this respect, that it becomes more virulent from the superaddition of a principle derived from the human body in a state of disease, which exists in the condition of an aëriform poison.

The cause of typhus is ordinarily produced in crowded and ill ventilated rooms; low, filthy and dirty hovels of the poor; also in jails, hospitals and ships, which are badly ventilated, and seems, indeed, to be a morbid effluvium, generated as before intimated, by the human body in a state of disease.

One strong point of dissimilarity between the cause of typhus and the cause of the intermitting and remitting forms of fever, is found in the temperature most favorable to their propagation. Miasmatic causes are not frequently generated in a temperature below 60°, and consequently we are scarcely ever visited by these fevers, except it be in conditions of high atmospheric heat. Whereas the typhus contagion is even more apt to prevail in low states of atmospheric temperature, in the colder temperate climates and cold seasons of the year, than in warm climates and hot seasons.

The observation of a large number of facts seems to go very conclusively to establish the doctrine that, at different times and under different circumstances, great diversity prevails in the degrees of virulence manifested by the cause of typhus.

During certain seasons, and in particular localities, it seems to manifest an unusual degree of mildness, scarcely any cases proving dangerous, when at other seasons, even in the same localities, or in different districts, its prevalence fills the land with mourning, scattering death and desolation throughout every neighborhood which is visited by the ravages of this fearful scourge, in its more malignant and aggravated forms.

It must be frankly acknowledged that the advocates of the non-contagious nature of the cause of typhus have sustained their position by the adduction of a strong array of reasons, many of which appear to be almost incapable of refutation. Notwithstanding all this, the prevalent opinion is in favor of the contagious character of the cause.

So far as it relates to the prognosis, we are enabled to form a pretty correct opinion, from the manner in which the attack is ushered in. If all the symptoms appear to be marked by an unusual degree of violence from the first, such as delirium, general change in the expression of the countenance, pneumonic symptoms, great thirst, followed by difficulty of swallowing, blindness, *subsultus tendinum*, paralysis, involuntary discharges, low muttering, small, frequent and irregular pulse, tumefaction and tenderness of the abdomen, petechial or extravasated spots, continued motion of the hands and picking of the bedclothes, very great acuteness or extreme torpor of the sensorial functions, colliquative and involuntary discharges from the bowels and skin, they show that the patient is in a very dangerous condition. On the other hand, if the patient should, in the early stage, be affected with mild spontaneous vomiting, relieving the unpleasant stupor and heaviness about the head, moderate diarrhoea, slight hemorrhage, particularly during this stage of excitement, and general moderation of the symptoms, the absence of much tumefaction and tenderness of the abdomen, they may be regarded as affording pretty conclusively favorable evidence.

Eclectic Reformed Treatment. Before entering on the subject of the treatment of this important form of disease, I must solicit the attention of the reader to the three important points involved in the consideration of the management of cases of this malady, which, if not properly understood and duly appreciated, will be likely to embarrass the young practitioner.

1st. The unavoidable tediousness and necessary duration of this disease, even under the best and most efficient management.

2nd. The necessity that exists, to use in the treatment of this affection means and measures altogether more active than the symptoms and circumstances seem to require, or in other words, to use a course of measures infinitely more active than the intensity of the symptoms seem to demand.

3rd. The practitioner should constantly bear in mind the important fact that all cases of typhus demand much earlier and more vigorous use of sustaining medicines, such as tonics and stimulants, than other forms of fever. It would be the highest degree of imprudence on the part of the practitioner to enter on the treat-

ment of this case with the expectation or hope of bringing the attack to as speedy a close as many other forms of fever. It more especially behooves him not to promise the patient or his friends that, by the agency of his remedial measures, the attack will be speedily arrested and the patient restored to health. We are among those who have an abiding confidence in the efficacy of a properly directed course of treatment, but we have too much experience in the treatment of this complaint, to believe that success can be very speedily attained by any course now known to the medical profession. So far as it relates to the matter embraced in the second consideration, we candidly believe that thousands annually fall victims to the ravages of typhus whose lives might have been easily saved by the institution of a more prompt and vigorous course of treatment in the earlier periods of the disease. Too many practitioners are disposed to be governed by that very common, and very proper rule of treatment so far as it regards many other kinds of disease, viz: to treat them according to the apparent urgency of the attending symptoms, and attempt to regulate their management of this complaint by the principles it indicates. We have always found it the best policy to treat this complaint with a degree of efficiency quite disproportioned to the apparent necessities of the case.

In regard to the third proposition, it is scarcely necessary to bestow any serious attention on the earlier necessity that exists, to make use of a sustaining and tonic course of management. It is a doctrine so universally admitted, that scarcely any one who has had any opportunity to make personal observations on the subject doubts the propriety of this course; for there is clearly a strong tendency to prostration and sinking in this disease manifested at a pretty early stage, and very distinctly noticeable throughout the whole course of the disease.

To proceed more directly to the treatment: the attending circumstances of nearly every case are such as to demand pretty thorough and prompt emesis; and I have found nothing answer this purpose better than four parts of *eupatorium perfoliatum* combined with one part of the *lobelia inflata*, prepared by adding one quart of boiling water to one ounce of the compound, and allowing it to steep for an hour, and giving it, after straining, in doses

of from one third to half a teacupful every ten or fifteen minutes, until free, full and copious vomiting has taken place three or four times. It is not so much on account of the vacuant influence that emetics prove serviceable in this case, but on account of the powerful shock that they give to the nervous system, and their strong effects in counteracting that tendency in this case to torpor and congestion, which are found to be among the most troublesome features of the case. This preparation seems to exert a favorable influence in restoring the capillary vessels to a proper state of action. It often happens that the very best effects result from altering the mode of administering this medicine, and instead of giving it as frequently as once in ten minutes, to repeat the doses at intervals of from one half to an hour and thus occupy several hours, or perhaps a half a day, in the administration of the medicine.

The free use of purgatives of a suitable character cannot fail to be productive of the most beneficial results in the earlier stages of the affection. Those that produce a free, brisk and efficient action on the bowels, are among the most effectual. It is a matter of primary importance, in the selection of cathartics in this case, to avoid all such as are liable to generate gastro-intestinal irritation or inflammation, by the long continued drugging and exciting effects on the bowels. Perhaps none is more valuable than a combination of equal parts of *leptandria virginica* pulv. and anti-bilious physic, given in doses from 30 to 50 grains. This combination operates mildly, yet with great efficiency and briskness, the effects of which pass off speedily. This too should be repeated pretty frequently during the earlier stages of the disease. If, however, any evidences of gastro-intestinal inflammation should be manifested, the neutralizing physic would be found well adapted to fulfill the necessary indications, as a gentle laxative or mild purgative.

The efficacy of bathing should not be overlooked in the treatment of this disease, more especially as an auxiliary to prepare the system for the production of a thorough general perspiration, an effect of the very first importance in all febrile and inflammatory cases. The cold bath, by many systematic writers, has been spoken of in terms of the highest praise, but my experience in

the use of baths has induced me to regard the ley and spirit bath as the most effectual in the treatment of typhus and typhoid fevers. I have used equal parts of weak ley and whisky, by means of brisk frictions with a piece of sponge or flannel cloth over the whole surface of the body repeatedly, when about to make an attempt to produce diaphoresis, with the happiest effects. The diaphoretic preparation which I have found most useful in the treatment of typhus, is prepared by adding one quart of boiling water to one ounce and a half of the pulverized sumach berries, bayberry, *sanguinaria canadensis*, and *hydrastis canadensis*, combined in the proportion of equal parts. This preparation should be steeped sufficiently and then strained, and given in doses of from one third to a half of a teacupful every fifteen or twenty minutes, until pretty free and copious perspiration shall be produced, and continued in a moderate degree of activity for several hours. At the same time that this produces the desired effect as a sweating medicine, it exerts a beneficial influence in sustaining the strength of the patient and preventing the symptoms of the stage of collapse. A moderate degree of moisture, softness and relaxation of the skin is highly desirable, and should be produced as often as it may be deemed necessary, in the course of an attack of this disease, by the repetition of the above measures.

I have not unfrequently resorted to the rum sweat as a means to restore the action of the skin, and to produce a permanently beneficial effect. Its effects in the restoration of the action of the skin and the superficial capillaries, have been abundantly satisfactory, especially when resorted to at a sufficiently early period of the attack, and repeated as often as the circumstances of the case might seem to require. The determination to the surface produced by this measure seems to be more permanent than by any other mode of medication used for the production of perspiration.

As a means of producing nausea and diaphoresis, and overcoming torpidity of the liver, I have used with much advantage a powder prepared by taking hepatic powder 1 ounce, ipecac 12 grs., and *lobelia inflata* 12 grs., and dividing this quantity into 12 powders, giving one in any convenient vehicle every hour. Premised as a suitable medicine for some hours before an emetic is given, it will be found a highly useful preparation, and will be

the means of insuring a more decidedly useful influence from the operation of the emetic. When used as an alterative and nauseant for the purpose of breaking down the excitement, its favorable operation is none the less conspicuous.

The speedy favorable effects of the treatment is not unfrequently prevented by the development of special irritation or inflammation. With a view of ascertaining whether or no the case is complicated with symptoms of this kind, the practitioner should make frequent examinations of the whole spinal track and base of the brain, and if much morbid tenderness is detected, suitable topical applications should be used to counteract it, such as cupping, the application of strong stimulating liniments, mustard plasters or irritating plaster, if necessary. Measures of this kind will be found amply sufficient to counteract this state of things, as a general rule.

Tonics and stimulants should be used at an earlier stage of this complaint than most other febrile affections, more especially in the stage of collapse, or on the occurrence of anything like the symptoms of that stage. The ague bitters answer, in many cases of this kind, a valuable purpose, used in doses of from a half to a tablespoonful once in three hours, especially when the symptoms of the stage of collapse have not advanced much; but if the evidences of debility should be such as to indicate a necessity for more efficient tonic influence, then the quantity should be increased and given at shorter intervals.

The vegetable wine bitters often answer a most valuable purpose, in doses of half a wine glass, morning, noon, night and bedtime, and in bad cases more frequently, and perhaps in increased quantities.

V.

TYPHUS ICTERODES—YELLOW FEVER.

This is a form of fever which prevails more especially in southern latitudes, and is now generally regarded as a high grade of bilious remittent fever, dependent on causes similar to those that give rise to that form of disease; like remitting, it is subject to an infinitude in the variety and grade of its violence which its attacks assume at different seasons, under the operation of a multiplicity of causes, which may have an agency in giving it character.

It more commonly begins with a feeling of giddiness, faintness, pains in the loins, back and extremities, nausea, debility and slight creeping chills. After these symptoms continue a longer or shorter time, according to the nature and intensity of the action of the cause or causes, violent febrile reaction takes place, accompanied with increased pain in the loins and lower extremities; the skin becomes intensely hot and red, headache and tormenting thirst, intolerance of light, a sense of weight, heaviness and oppression in the epigastric region. During this stage, which lasts from 24 to 36 hours, usually towards its close violent vomiting commonly takes place; the contents of the stomach are first ejected, which is succeeded often by a greenish colored bile, so acid as to excoriate the mouth and fauces. The distressing sensations about the stomach increase, and there is an indescribably distressed look of the countenance, bearing a strong resemblance to the look of hopeless despair, sighing and delirium to a greater or less extent, and sometimes a sensation of hunger is felt. The first stage or paroxysm lasts from 24 to 36 hours, and sometimes much longer. After the subsidence of this paroxysm or stage, which is shown by the disappearance of the other symp-

toms, except the nausea and vomiting, which continue notwithstanding the general abatement of the other urgent symptoms, pulse returning to its natural condition, moist and natural state of the skin, the patient feels much better and is apt to think he is about to get well.

But this seems to be rather a deceptive calm; for after the lapse of a few hours, a more violent paroxysm comes on than before. The distress in the stomach becomes intense, thirst very urgent, but the vomiting is so frequent that every thing is immediately rejected, nausea constant, membranous flocculi are found in the fluids thrown up from the stomach, but very little or no bile. The eyes, and skin about the neck and face, turn yellow, and the disease assumes more of its characteristic features. This stage lasts from 12 to 36 hours, which is soon succeeded by the third and last stage. The fullness, frequency, and force of the pulse diminish or rather sink, the tongue becomes dark brown or black, the vomiting becomes very forcible, the matter thrown up consisting of a dark fluid resembling coffee grounds, suspended in a mucus having a glairy appearance, an acrid, burning sensation in the stomach, the extremities become cold and clammy, diarrhoea is apt to take place, the patient feels inclined frequently to have operations, but is unable to evacuate the contents of his bowels. The discharges from the bowels are of a greenish or black matter, the skin looking of a dirty yellow color, delirium, coma, insensibility, convulsions and death.

The train of symptoms, marking some other cases, is even different from the commencement. Some fall down and become insensible from the very commencement, and appear to labor under a great degree of nervous depression. Others again appear to be attacked with mania and violent fits of delirium from the very commencement; and in still other cases, the attacks approach so stealthily as scarcely to apprise the patient of their insidious invasion, until he finds himself deeply involved in the attack, without having previously any apprehensions of a severe fit of disease of any kind.

Scarcely a reasonable doubt can be entertained that this very fearful form of disease depends on causes similar to those which give rise to intermitting and remitting fevers, but in a much more

highly concentrated state, which accounts for the difference in the results of their operation on the systems of those who are exposed to their influence.

Much elaborate discussion has been had among medical men touching the contagious nature of this complaint, and not a little diversity of opinion on this subject has manifested its existence in their controversies respecting the nature of yellow fever. While one class have contended for its dependence on causes of a contagious nature, the other have regarded it in the light of a non-contagious complaint. A majority of those whose opinions are most entitled to respect, hold to this last doctrine. Like many others, it doubtless may assume a character, which, in many respects, resembles those which are, on all hands, acknowledged to be contagious diseases, and still does not possess all of them in a state of such complete and perfect development, as to admit of no cavil; as for example, small pox is a disease which all admit to be contagious, and will communicate itself to all such as come within the sphere of its influence, whether in an atmosphere favorable to its propagation or not. So far as researches have been made, they do not seem to invest yellow fever with a capacity to spread with the same facility without, as well as within, the infected districts; or in other words, when the patients are removed from the district in which it is prevailing, to a healthy neighborhood, it does not readily communicate itself to such persons as come within the sphere of its action, a fact which would go pretty strongly to disprove its contagious nature.

Eclectic Reformed Treatment. I must confess, in the commencement of my remarks on this branch of the subject, that it has never fallen to my lot to have much personal experience in the treatment of this fearful malady, especially as it usually develops itself in tropical climates. It is true I have seen several cases of this form of fever, as it exhibited itself in the persons of patients who were landed from boats on their upward passage from New Orleans, during its prevalence in that city in a severe and malignant form, and where the crew, or rather passengers, several of them, had fallen victims during the passage to the port of Cincinnati.

One of these cases occurs to my mind at present. Capt. F.

arrived here about ——— with symptoms of this complaint, and was taken immediately to his uncle's in this city, and very soon became remarkably ill with the symptoms of yellow fever. I was requested to visit him immediately, which I did accordingly, and found him laboring under great debility, nausea, vomiting and moderately high fever, a sense of extreme irritability, tenderness and oppression about the præcordial region, with extreme restlessness, a somewhat hurried respiration, with a very harsh, dry, torpid, as well as constricted state of the skin; the circulation appeared to have receded very much from the surface and extremities; the skin about the face and neck assuming the yellow tinge. I commenced the treatment of this case by attempting to restore, to some extent, the equilibrium of the circulation and excitability. With this view I directed the whole surface of the body to be bathed actively with weak ley and whisky quite warm, with flannel cloths moistened in it, applied by making brisk frictions. This process was continued actively for an hour or two. During this time, a very large mustard plaster was applied to the whole extent of the abdomen, which, after remaining for some time, was removed, and its place supplied by the frequently repeated application of bitter herb fomentations, with mustard plasters to the inside of the thighs and the soles of the feet. In addition to these measures externally, the patient was directed to take freely, warm peppermint and catnip tea. These measures produced a happy influence on the patient, in drawing out the circulation to the surface, restoring the lost balance of the excitability, and greatly relieving the oppression and restlessness and excitability of the stomach. After having produced these effects, a purgative was given, composed of equal parts of *podophyllum peltatum* and *anti-bilious physic*, which operated very thoroughly, without appearing to produce that degree of prostration which might have been anticipated from so active an influence, which was doubtless owing to the preparatory measures taken previous to the administration of the medicine.

It is believed that we shall be able to account more satisfactorily for the general failure in the success of medical treatment, when we reflect on the fact that the mass of orthodox practitioners scarcely ever think of appropriating that attention to the res-

toration of the functions of the skin, as a preliminary step to active evacuation, which its high and incalculable importance so urgently demands, and by every other consideration which can be drawn from an enlarged view of the proper fulfillment of this important indication, and the consequences which legitimately flow from it, in the treatment not only of this but other forms of disease. Had a course of active purgation been adopted in the very commencement of the treatment of this case, no one can entertain a reasonable doubt that the ultimate success in this case would have been greatly jeopardized by such a procedure.

In the further treatment of this case, the principal dependence was on the use of tonics, mild diaphoretics and gentle cathartics, which soon proved successful. The *compound restorative bitters* was the principal tonic depended on, given three or four times a day, in doses of from one half to a wine glass full.

The treatment best adapted to cases of this kind, would be the same as that found most efficacious in high grades of bilious remitting fever.

VI.

PHRENITIS: INFLAMMATION OF THE BRAIN.

Phrenitis is a disease of not very frequent occurrence ; still, however, we occasionally meet with cases of it existing in various degrees of violence, according to the activity and extent of the inflammation. In a few cases we have a high grade of inflammation, which has a tendency to run its course speedily, if not arrested by suitable means. In other cases the grade of inflammation is much lower, and consequently a much milder and less turbulent class of symptoms will present themselves, and the case will pursue a milder, tardier and less threatening course.

The symptoms are,—fixed, throbbing, internal pain in the head ; full, flushed and swollen appearance of the face ; intolerance of light and sound ; redness of the tunica conjunctiva, throbbing of the carotids, stupor, morbid vigilance, heat of the head, great thirst ; hearing, after having been acute, generally becomes dull as the disease advances ; fever and costiveness ; delirium sometimes quite furious, even from the first ; urine high colored and small in quantity. Delirium is a common attendant from the commencement, but soon becomes violent, as the disease advances ; continued restlessness and agitation of the body ; pulse at first is hard, but afterwards becomes soft ; respiration is somewhat slow and difficult, towards the close ; some uneasiness is felt along the spine ; deglutition is somewhat difficult ; some increase in the biliary secretion is often noticed, arising, most probably, from the strong sympathetic connection between that organ and the brain, producing in some cases a jaundiced appearance of the skin.

Causes. The causes are various. Among those which are most frequent in their operation in the production of this formid-

able malady, may be mentioned cold, when the body is heated, relaxed and weak; the violent operation of the passions; intemperance in eating and drinking, more especially the excessive use of ardent spirits; suppression of customary discharges; the recession of sundry eruptive affections; the translation of gout, rheumatism and erysipelas; intense study; or, indeed, any very active operation of the powers of the mind, continued too long. Blows and injuries, also, may produce it. It not unfrequently occurs in the progress of fevers, and is sometimes produced by a sudden change of the location of inflammation from the stomach and bowels to the brain.

Attacks of this disease are by no means free from danger, and that danger will depend on the extent of the inflammation, and the intensity of the symptoms dependent on it.

Pathology. In this form of inflammation, the pia and dura mater are both conspicuously involved, and although we do not often find very obvious evidences of inflammation in the substance of the brain, yet we cannot be permitted to doubt that inflammation does affect this tissue very sensibly, but not to such an extent as to leave very obvious traces of its existence after death. Most of the morbid evidences are found in connection with the membranes: such as deposits of lymph, serum, and congestion of blood vessels.

Eclectic Reformed Practice. It is proper, as a matter of consequence in this case, as well as all others, that we should have reference to the nature of the cause when we are about deciding on the proper means of treatment, taking care at all times to make use of such a course as will have a direct tendency to remove the cause. The feet and legs of the patient should be placed in hot water immediately, and should be thoroughly and efficiently bathed for at least half an hour; at the same time, however, a very active and efficient cathartic should have been given as soon as you are called to the patient, and the soaking of the feet is going on. A very good form for this purpose consists in a compound made by taking equal parts of leptandria virginica, anti-bilious physic and cremor tartar. As much as one table spoonful of this compound should be given at a dose, mixed in a little water, sweetened, and moderately warm. If this should

not operate very powerfully in three or four hours, it should be repeated once in two hours until it does. The immediate application of a large sinapism to the whole extent of the abdomen will be found a measure of the utmost utility, by its powerful revulsive influence, and tendency to draw from the brain. The same kind of applications should be made to the thighs, legs and soles of the feet. Cupping to the back of the neck and the base of the brain will be found highly useful. Cold applications should be made very freely to the head. A saturated solution of table salt, in equal parts of vinegar and water, forms a commodious preparation for this purpose. Cloths dipped in this solution, and applied to the head, will be found highly useful. The application of dry cups between the shoulders, and the use of sinapisms to the same location, often exert a beneficial influence. Bathing the whole surface of the body with a ley bath is a measure of undoubted importance, and should in no case be neglected; and frequent soaking of the feet, in the manner before indicated, will be a measure of such entire value as to commend itself to the favorable notice of all practitioners.

The repetition of purgatives, as often as the circumstances of the case may seem to demand this evacuation, will be found highly useful, and in fact indispensable to success; and it may be that the practitioner will find it necessary to repeat the cupping also. The immersion of the whole body in the warm bath, in a bathing trough, and at the same time allowing a stream of cold water to be poured from a considerable distance on the head of the patient, in a continued stream, having the head of the patient so situated that the water poured on it may be conducted off, so that it may not mingle with the water in which the body of the patient is immersed. During this process, it will be found highly useful to make use of brisk friction, by means of flannel or woollen cloths. This measure will aid much in the restoration of a proper action of the superficial vessels of the skin, and tend much to withdraw the undue determination of blood to the head, and equalize the excitability of the system. This plan of operations may be persisted in for a half or three quarters of an hour at a time.

The application of warmth and moisture has occasionally

exerted a very beneficial influence, when applied to the head, under the guidance of a discriminating discretion in their use,—say in the form of the bitter herb fomentation. Of the use of this measure, we shall have occasion to speak more at length when we notice *Arachnitis*.

Much advantage may be derived from producing gentle but long continued nausea, for a proper length of time, by giving the acetous tincture of *sanguinaria canadensis* and *lobelia inflata*, in doses of one teaspoonful every hour. This generally exerts a specific controlling influence over the progress of this complaint. When there is much nausea and irritability of the stomach, neutralizing physic is known to have been a highly useful medicine, in connection with a proper course of counter-irritation. Nauseating and relaxing enemata have been productive of considerable advantage in the treatment of this disease, when repeated pretty frequently, so as to keep up a constant nausea and occasional vomiting.

Much advantage may be derived from dipping towels often in very cold water, and covering over the head as completely as possible, renewing the application as often as once in three or four minutes; while at the same time, cloths dipped in very hot water may be industriously applied to the feet, legs and thighs of the patient, with a view to the equalization of the circulation and excitability of the system. Extensive dry cupping on the spine, and subsequently the application of a poultice of the pulverized or bruised leaves of the *eupatorium perfoliatum* and *lobelia inflata*, brought to a proper consistence by stirring in a small quantity of corn meal, will be useful. The extensive application of dry cups to the soles of the feet has been known to be productive of much advantage in the treatment of this case, in consequence of its powers as a revulsive. The application of ligatures to the arms and thighs, above the elbows and knees, with a view to detain the blood in the extremities, is a measure deserving of confidence, in the treatment of this malady, and should be tried in every severe attack which is not speedily brought under the influence of the means already recommended.

I am led to think that, from the very powerfully controlling influence exerted by the *podophyllin*, when given in doses of one-

half a grain, every two hours, until it operates very freely some six or eight times on the bowels, and produces a large share of nausea, would be a remedy well adapted to the treatment of a case like this, although I must confess I have had but little experience in the use of this article, in the treatment of active cases of inflammation of the brain.

VII.

MENINGITIS, OR ARACHNITIS HYDROCEPHALUS.

These several names have been applied to inflammation of the membranes of the brain, and effusion of fluids in its ventricles and between its meninges. It is to be regretted that systematic authorities are not more unanimously agreed as to the proper designation of this form of disease by some appropriate name. While one regards it as essentially an inflammation of the arachnoid membrane (Eberle), another (Wood) looks on it as being liable to affect any and all the membranes of the brain indiscriminately, and by no means restricts it to the arachnoid. Thus, quite confused and contradictory opinions are entertained on the subject of the manner in which the parts principally implicated are affected, as well as regards the consequences to which it may give rise.

There is, however, much unanimity of opinion as to those who are more particularly the subjects of its attacks. All agree that children are more especially the subjects of this complaint, during the period of dentition; and those having a scrofulous tendency in their constitutions are more particularly apt to be seized with it and suffer most from it.

This complaint usually comes on gradually, but occasionally its attacks are noticed to come on quite suddenly. When gradual in its accessions, the patient becomes irritable in his temper, fretful, peevish, discontented, uneasy and restless, with occasional flashes of slight febrile excitement, repugnance to light and sound, bowels costive, though sometimes loose, sudden wakings and startings from sleep, and as the disease advances, twitches and slight convulsive movements of the muscles, and not unfrequently hurried wakings and screamings on the part of the patient; the pupils are not unfrequently dilated. There is, howev-

er, in many cases, a preternatural contraction of these parts. So far as my own observations might enable me to form an opinion on this subject, I have usually observed that the pupils were dilated in those having a scrofulous taint of constitution, and contracted in those who were not under the influence of that diathesis.

After the development of inflammation proper in these cases, additional symptoms are apt to present themselves; such as transient pains in the head and abdomen; restlessness and irritability of temper increase; febrile excitement becomes more vigorous and constant; a quick, tense and somewhat active pulse; the skin becomes dry and husky; one or both cheeks considerably flushed; tongue covered with a thicker coat; the vessels of the *tunica conjunctiva* injected; intolerance to light increases; the brows often knit, and the eyelids half closed; the stomach not unfrequently becomes irritable to such an extent as to produce nausea and vomiting. The little patient is often observed to place the hand on the head, and, in some cases, to pull out the hair in a fit of delirium, which increases as the disease advances, until symptoms of stupor and oppression come on, the pupils being either very much dilated, or very much contracted, the head thrown back and the eyes turned up, the countenance looks suffused and stupid, and there is an aspect of surprise in it, drowsiness increasing until coma comes on; the attention of the patient cannot be fixed on any subject, and there are abundant and unequivocal evidences of deep oppression of the brain. Under these circumstances, paralysis not unfrequently takes place, being often preceded by a tremulous motion of one arm, and a tendency to rigidity of the muscles; by degrees the use of the leg and arm is paralyzed, and in some instances there is double vision and strabismus. After inflammation has terminated in actual effusion, there appears to be a temporary amendment in all the symptoms, so much so as to delude the friends of the patient, and sometimes even the physician, into the belief that the patient is really better; but this deception is soon dissipated by the occurrence of terrific convulsions and a more profound state of coma and stupor than existed before, which soon end in death, relieving the patient forever from all suffering. It very often happens

that complete deafness and blindness take place in these cases prior to death. Indeed, these conditions often exist to a limited extent, in some cases, for several days before the fatal termination.

Many attacks of this malady, instead of pursuing the course described in the foregoing remarks, come on quite suddenly, and develop at once symptoms of an alarming character, such as severe convulsions, stupor, coma, with the head thrown back, and a sort of stertorous breathing, the eyeballs turned up, often squinting or strabismus, occasionally with evidences of paralysis, the eyes looking dull, watery and bloodshot. These symptoms often increase until the case terminates fatally, which it does frequently in a very short time, notwithstanding an efficient and judicious course of treatment may be instituted and vigorously carried out.

Diagnosis. So far as it relates to this complaint, there is but little danger of confounding it with any other case, with the exception, perhaps, of infantile remittent fever. From this, however, it is pretty readily distinguished by the discharges. In the remitting fever the discharges are of a dark brown, mud like color and very fetid, but in this disease they are dark green and glairy. In infantile remittent fever, some of the regular types characterise the attacks, such as the double tertian, quotidian or single tertian, and there is some considerable degree of regularity in exacerbations and remissions; but in this case no such uniformity of type, or regularity of remission and exacerbation is noticed. Among the morbid appearances we notice evidences of inflammation of the membranes, and sometimes of the substance of the brain, in conjunction quite frequently with an accumulation of serous fluid in the ventricles, to a greater or less extent, and sometimes between the membranes.

Causes. In relation to the causes of this disease, it might be proper to remark that there often exists something like a constitutional or hereditary predisposition to the malady, at least, in many families, so much so, indeed, as that most of the children of such families die of this complaint, and it not unfrequently requires, in such cases, but a very slight exciting cause to bring it into action, and to develop the well marked evidences of the disease. So far as common influences are concerned in produ-

cing this disease, none is more prolific in this respect than that of teething, more especially connected, as it often is, with an irritable state of the stomach and bowels. Any prominent derangement of the digestive organs, in children, seems to be very apt to engender disease of this kind, more especially, if such derangement shall continue, in any considerable degree of intensity, for a length of time. However, among the causes more especially apt to excite this disease into action, may be enumerated blows or injuries of the head during the period of childhood; cold may also operate as a cause; and the recession of eruptive and cutaneous affections. Mercurials undoubtedly play an important part in the production of this disease. Many of the advocates of the use of this class of medicines, admit that they often lay the foundation for attacks of this description. In Thacker's Practice, page 627, Dr. Hosack says, "Mercury, in my opinion, has oftentimes been the exclusive cause of this disease. Certain it is that dropsy of the brain has become of much more frequent occurrence since the general, and I had almost said, the indiscriminate use of this metal, in febrile and inflammatory diseases." Such is the testimony of this distinguished author and physician. No one who has an adequate acquaintance with the subject will pretend to deny that scrofulous affections are much more general among those families who are in the habit of making use of mercurial medicines, than among those who wholly discard them. Hence it would follow as an inevitable conclusion, from the fact, almost universally acknowledged, that this malady much more frequently attacks scrofulous subjects than any other, and that cases are multiplied by the use of mercurial medicine.

Eclectic Reformed Practice. As a general rule, it would be proper to commence the treatment of this disease by the use of hydragogue cathartics, and perhaps none answers the purpose better than the common anti-bilious physic one part, and cremor tartar two parts, by weight, given to a child two years of age in doses of one-third of a teaspoonful, mixed in some convenient medium for administration, once in an hour, until it produces free and copious watery discharges from the bowels, as well as produces quite an increase in the quantity of the urinary secretion. It would be proper, as a general rule, to repeat these hy-

dragogue operations as often as once every third day. In the intervals between the repetition of the purgatives, the child would do well to take from a half to a tablespoonful, every two hours, or perhaps, in some instances, more frequently, of a strong infusion, made by adding one pint of boiling water to one ounce of a compound, formed by taking equal parts of pulverized apocynum cannabinum and mentha viridis; after sweetening this infusion, it should be taken to the extent of producing a slight laxative influence on the bowels, and so as to increase the quantity of the urinary secretion, as well as to cause a slight sense of nausea and a gentle diaphoresis and relaxation of the whole system. These are effects which it is highly desirable to produce, inasmuch as they exert a most salutary influence in controlling this malady and preventing a liability to a fatal termination.

Decided advantage is often derived from alkaline bathing frequently repeated. It has a strong tendency to increase the action of the torpid and sluggish capillaries of the surface, as well as to remove effectually the extensive lodgments of sebaceous matter, which is the residuum of insensible perspiration. It is more especially necessary to carry out this operation industriously during the continuance of fever, as by these alkaline bathings you diminish the inflammatory tendency of the system, in a speedy and expeditious manner. The congenial influences which are imparted, by this highly valuable measure to the skin, are transmitted with promptitude to the internal parts, and produce there similar changes in the condition of all the strongly sympathizing tissues, and thus give a freedom to the varied movements of life, which are highly beneficial to the little sufferer.

The application of cold evaporating lotions has long been practiced, and, in many instances, has been found quite beneficial. A strong solution of table salt, prepared in equal parts of vinegar and water, will answer this purpose very well, by dipping linen cloths and ringing them out partially dry, applying them over the head, and renewing the application very frequently. But I candidly confess that my experience in the use of the common bitter herb fomentation, placed between two cloths, and applied in the form of a cap on the head, as hot as can be borne,

has led me to entertain a more favorable opinion of its virtues, than any cold application whatever, more especially in those cases in which the scrofulous diathesis seems to prevail to a greater or less extent. I have often noticed that the applications would produce a general relaxation of the whole system, and a moderately free and natural perspiration, and in this way tend very decidedly to diminish the symptoms of inflammation about the brain, and promote the activity of the function of absorption.

In such cases as are complicated with some looseness of the bowels, acidity of the stomach, &c., the neutralizing physic will be found to be an article of the highest value, and should be taken, by a child two years old, in doses of two teaspoonsful every half hour, until it acts on the urine, neutralizes the acid, and changes the character of the discharges from the bowels.

VIII.

OTITIS, OR INFLAMMATION OF THE INTERNAL PARTS OF THE EAR.

This is one of the phlegmasial diseases, by no means of very frequent occurrence, but nevertheless it occasionally happens, giving rise in some instances to an intensity of pain which is almost insupportable by the patient.

The symptoms are very acute pain in the part affected, accompanied with more or less delirium after the continuance of the pain for some time. The local inflammation gives rise to fever of a higher or lower grade of intensity, according to the extent of the affection, with dryness of the skin and a diminution of the secretions generally, costiveness, with a decided determination of blood to the head, and a consequent deficiency of the circulation in the extremities, a slightly furred state of the tongue, and restlessness, and stupor. The function of hearing is more or less affected, and usually great intolerance of harsh and loud sounds, carotids beating pretty violently, more especially on the affected side; the face looks a little bloated and of a dark and livid hue. The parts which are more particularly implicated in this disease are the *membrana tympani*, the lining membrane of the cavity of the tympanum, the lining membrane of the *meatus auditorius externus*, the eustachian tube, and the adjacent parts to the cavity of the tympanum.

The causes are, more especially, cold, particularly when a current of air passes forcibly through a small crack or opening in a wall or door, and strikes upon the *meatus auditorius externus* and *membrana tympani*; particularly if the parts shall be long exposed to said current of cold air, inflammation is remarkably apt to be excited. This affection is sometimes, however, produced by living

insects creeping into the external meatus, and becoming entangled in the cerumen, and by their exertions to extricate themselves from their situation are liable to produce inflammation. It is occasionally excited by other causes, such as any foreign substance which may have accidentally fallen in on the membrani tympani, and are difficult to remove from their situation, and by thus remaining in contact with this very delicate and sensitive membrane, readily give rise to this form of disease.

Eclectic Reformed Practice. So far as it relates to the treatment of this malady, the indications are certainly very plain: the reduction of the local inflammation, and the equalization of the circulation and the excitability of the system. According to my own experience, these indications are best fulfilled by the use of the following means: first, by subjecting the parts affected to the vapor of the bitter herb fomentation, which may be readily prepared and applied by taking hops, tansy, mayweed and catnip, equal parts, and boiling them together in equal parts of vinegar and water, and putting these in some convenient vessel and placing the ear over the hot vapor arising from it, at the same time covering the head with a handkerchief, so as to confine the vapor to the part affected. After the affected part has been subjected to this process, the immediate application of a large roasted onion to the part affected, and bound on as a poultice, will be found very beneficial in the treatment of this case. This application should be renewed in the course of an hour or two; the fomentation should also be repeated in the course of an hour or two. The patient's feet and legs, at the very commencement of the attack, should be immersed in weak, hot ley water, and at the same time should be rubbed thoroughly and industriously, by means of sponges or flannel cloths, dipped in the same. This should be carried out industriously for twenty minutes or half an hour at a time, and occasionally repeated as circumstances may require. A brisk and active hydragogue cathartic, composed of two parts of cremor-tartar and one of anti-bilious physic, given in sweetened water, in doses of from one to two teaspoonsful, every two hours, until it operates freely, will be found highly useful in the reduction of the inflammatory symptoms in this case; also, bathing the whole body in connection with gently diaphoretic measures,

such as infusions of catnip, mint or sage, taken pretty freely. Advantage in many cases may be derived from cupping, applied to the back of the neck or between the shoulders, along the course of the spine, and in some cases on the side of the neck, just below the mastoid process of the temporal bone.

If the inflammation be excited by the presence of any foreign substance whatever, in the ear, it should be as speedily as possible removed, and the effect will cease. In the event of insects creeping into the ear and producing the attack, they should also be removed if possible. If, however, they cannot, then their lives should be destroyed by subjecting them to the influence of tobacco smoke, spirits of turpentine, or something of a similar character.

IX.

GLOSSITIS, OR INFLAMMATION OF THE TONGUE.

This is by no means a frequent disease, but it occurs sufficiently often to demand an attentive examination. It usually commences with a pretty severe throbbing, burning pain, very soon followed by general febrile symptoms, a dry state of the skin, and a general diminution of the secretions; the swelling of the tongue increases rapidly; deglutition soon becomes very difficult, if not impossible; respiration is much impeded, and, in the more advanced state of the case, there is a horrible sense of impending suffocation; the tongue becomes very much enlarged, is hot, dry and greatly swollen, so as often to protrude from the mouth. The swelling becomes so great as that the mouth is almost completely filled, producing such pressure and fullness on the anterior part of the neck as greatly to obstruct the circulation of venous blood from the brain, thus giving rise to apoplectic symptoms. The patient often becomes, in this case, entirely unable to move the tongue, or swallow. This inflammation often terminates in supuration and the formation of a large abscess,—sometimes, in gangrenous ulceration and sloughing.

This inflammation may be produced by any local irritating cause, or by any acrid substance acting with too much energy on the tongue,—such as strong and pungent substances of any kind, scalds, burns, stings of poisonous insects, injuries and bruises. In some few instances, the inflammation is propagated directly from adjacent parts to the tongue. Mercurial medicines often produce this disease. So much swelling often takes place, from the effect of mercury, as to cause the tongue to be protruded from the mouth so far as to rest on the breast. Among the symptoms which may be relied on as indicating the fact that the attack of

inflammation is owing to the effects of mercury, may be mentioned a slight increase of the salivary secretion ; a metallic taste in the mouth, resembling copper or brass ; some tenderness and swelling of the gums, with a sense of soreness in the teeth, especially manifested by closing the jaws ; the margin of the gums often shows a whitish or pale line about the place of their connection with the teeth, as well as exhibits a swollen and soft appearance, with some additional redness ; a sense of soreness and stiffness in the articular surfaces of the jaw bones, made obvious on opening the mouth ; a peculiar, offensive fetor is noticed in the breath, and to proceed from the mouth, and to emanate from the body of the patient ; the inflammation soon extends to the adjacent parts, and involves all the parts about the mouth ; the tongue is covered with a yellowish-white or brownish fur, and the teeth often impress their indentations on the sides of the gradually increasing tongue ; the soreness often extends to the throat, and deglutition and respiration both become very painful and difficult. Ulceration often takes place, especially about the necks of the teeth, and extends in some instances very rapidly, sometimes to the lips, cheeks and fauces, and it not unfrequently happens that large portions of the parts in question slough off ; and this sloughing process is continued even to the bones, and sometimes quite large portions of bones exfoliate and slough off in connection with the adjacent soft parts. Alarming hemorrhages often occur, and frequently death winds up the melancholy scene,—not, in many cases, without the ulceration producing the most frightful and horrible ravages that ever human eyes beheld, in the unfortunate victims who fall sacrifices to the despicable quackery which dictates the use of this medicine in the treatment of disease. In many cases of this kind, when the patient survives the immediate effects of this destroying medicine, the ghastly deformities which result from its operation are such, together with the inroads made on the constitution, that he is compelled to drag out a life of the most intolerable suffering, and at last he hails death as a welcome messenger that will release him forever from the overwhelming burthens which have borne his mortal remains down to a premature grave. What a commentary does the occurrence of facts like these offer to the candid and inquiring mind, in the midst of

all the light which is shed on the pathway of the professional man of the 19th century! Does it not really appear that a reform was necessary?

“Some individuals are exceedingly susceptible to sore mouth from mercury; the smallest quantity of the mineral being sufficient to produce severe effects.”—*Wood*.

The treatment of cases of glossitis produced by other causes than mercury, should be conducted on general principles, having some reference, however, to the particular character of the cause which may have excited the attack, and modify the treatment accordingly. As a general rule, in the early period of such attacks, general evacuation by the administration of mild emetics, such as the common acetous tincture of *sanguinaria canadensis* and *lobelia inflata*, equal parts, forms an excellent and commodious article for this purpose, if given in doses of from one to two tablespoonsful, mixed with a little warm water or tea, every ten or fifteen minutes, till it operates four or five times. In a reasonable time, say two hours after the operation of the emetic is over, a pretty brisk and thorough cathartic should be administered; the common hydragogue purgative answers this purpose quite well, in a dose of two teaspoonsful, dissolved or mixed in a half a teacupful of warm sweetened water, and all taken at once. This will usually operate quite thoroughly, and fulfill admirably the indications of a purgative. After these operations it will often be found useful to soak the feet of the patient in weak ley-water, and give him or her, as the case may be, abundantly of some warm diluent diaphoretic drinks,—such as peppermint or catnip tea,—with the view of exciting a pretty copious perspiration; at the same time, the urgent importance of proper local measures should on no account be overlooked. A very good gargle is formed by taking one drachm of pulverized *hydrastis canadensis* and one drachm of bruised sumach berries, and the same quantity of pulverized borax, to half a pint of boiling water, allowing these articles to simmer a short time to obtain their strength, and sweeten well with honey, and apply frequently to the sore surface, in either the common or the mercurial swelled tongue or sore mouth. I know of no gargle which, when applied industriously in these cases, is better calculated to afford benefit

to the patient than the foregoing. I have used it in a great number of cases, and never without decidedly beneficial effects. There are several mucilaginous and soothing washes, which are very well calculated to produce favorable effects, when the parts become quite irritable, as they frequently do,—such, for instance, as a strong infusion of the fresh root of the marshmallows (*althea officinalis*), of *ulmus fulva*, of the benne plant, pith of the sassafras, barley water and flaxseed tea. There are also several slightly astringent articles which have been found highly useful as gargles in these cases,—such as common green tea, red rose petals, sumach berries, and black alder bark, in infusion or decoction. At different stages, and under different circumstances of these cases, most of the above articles have been found quite useful. Much advantage has frequently resulted from the effects of medicated vapor applied to the face and mouth, in attacks of glossitis and inflammation of the mouth. A commodious preparation for this purpose may be formed by adding a couple of ounces each of hops and catnip to two quarts of a mixture of equal parts of water and vinegar, and allow it to boil for a short time, to obtain the strength of the articles; then subject the parts to the vapor produced, by placing the head of the patient over the vessels containing the herbs, water and vinegar, and covering it with a large handkerchief, so as to confine the vapor to the proper place. This application, by being repeated frequently, has been known to produce favorable effects in these cases.

When the tongue is greatly swollen, emollient poultices have been applied with advantage to the part affected,—taking care to regulate the application in such a manner as to avoid closing the aperture of the nose, and thus to hinder respiration from taking place properly.

X.

CYNANCHE TONSILLARIS : QUINSY, OR INFLAMMATION OF THE TONSILS AND ADJOINING TISSUES.

This form of disease is remarkably frequent, even more so than any of the phlegmasial diseases, and is on this account entitled to a pretty critical examination.

The symptoms which usher in an attack are those of slight, chilly sensations, a sense of soreness and stiffness about the tonsils and adjacent parts, swelling and inflammation of these parts, with difficult and painful deglutition, and it is a fact that more difficulty is experienced in swallowing liquids than solids, in consequence of there being a greater number of muscles required to act to direct the particles of water right, towards the stomach, than there would be in directing a solid morsel. Respiration is rendered difficult, on account of the obstruction offered by the swelling, to the ingress of air. The tongue soon becomes coated with a thick layer of mucus of moderate transparency, there is fever of a higher or lower grade, with a full, hard and often corded and frequent pulse; there is often a very copious secretion of saliva of a frothy, ropy and tenacious character; the secretions are generally diminished, especially those of the skin and kidneys; there is a somewhat full and bloated aspect of the countenance; headache, and throbbing of the carotid and temporal arteries, together with the general evidences of an increased determination of blood to the head, and a corresponding deficiency in the circulation of the inferior extremities; a dry, husky condition of the skin; and a costive state of the bowels; the patient is much annoyed by the quantities of mucus that collect about the throat and obstruct respiration and deglutition.

Among the causes which are concerned in the production of this disease, none operate more frequently than cold applied when

the body is in a state of relaxation and debility, from over exercise or too much fatigue, producing a check of perspiration and thus developing its principal morbid effects on these parts. Cold and moisture applied to the feet, is by no means an unfrequent cause of this complaint; or partially applied to other parts of the body may with equal facility and promptitude produce an attack, especially in such persons as may once have had attacks of this malady. It is a remarkable fact, that there is an unusual predisposition induced to a return of the complaint after having once suffered from its effects, so that the application, in many instances, of the slightest causes, will be sufficient to induce its return. Sometimes one, and at others both the tonsils suffer from an attack; and the principal danger in these cases arises from the extent of the swelling and its tendency to obstruct respiration. More danger necessarily arises from the disease when both tonsils are affected than when one alone is the seat of inflammation.

It not unfrequently happens that repeated attacks produce a permanent enlargement of the tonsils, especially in such persons as are disposed to have a scrofulous taint in the system. These swellings may often become a source of great inconvenience to the patient. Sometimes the attacks end in the formation of abscess of the tonsils, and copious quantities of matter are discharged, and the inflammatory symptoms gradually pass off, and the patient feels much relieved. The most common termination of this inflammation is in resolution, which is indeed the most desirable, for its termination in permanent enlargement of the gland is a result which is greatly to be deprecated, and is productive of much inconvenience to the individual. Eberle in his work on Practice, vol. 1st, page 182, says in reference to this disease: "That internal suppuration often occurs in a few days, notwithstanding the most active local and general antiphlogistic measures." This is without doubt true. When we take into consideration the character of antiphlogistic measures usually depended on by the advocates of the bloodletting, mercurial and antimonial systems of practice, we cease to be astonished at the results. A more rational system of medication would be productive of results widely different.

In a very extensive experience in practice for more than twenty

years, I am not aware of more than two or three cases having had this sort of termination, in the treatment of one or two thousand cases of this malady. I am therefore induced to regard the occurrence of this event as indicating a deficiency in the nature of the measures used in the treatment, rather than any necessary tendency which the disease may have to this termination; for in the cases which thus resulted in the circle of my own practice, they were very far advanced in the disease before I was called on to prescribe for them. The eclectic practice has demonstrated the most satisfactory results in the treatment of this disease, so far as it has come under my own immediate observation. In the whole of my own practice, I have no recollection of ever having lost a single case, and have always been able to cure with great facility and certainty. This fact speaks volumes in favor of the necessity and importance of reform in the healing art; for the records of old school practice show an abundant mortality even in this simple inflammatory affection, which is known to be remarkably common in its prevalence.

The eclectic reformed practice regards the treatment of this affection as a very simple and easy matter indeed. The great leading indication in this case, as in most others, is to establish a proper equilibrium in the excitability and the circulation, the fulfillment of which is readily accomplished in most cases by the following measures. First, give an emetic of the acetous tincture of lobelia inflata and sanguinaria canadensis, equal parts, in doses of from half to a tablespoonful every ten minutes, mixed with a little warm catnip or pennyroyal tea, until it operates freely, some five or six times, and produces general perspiration and relaxation of the whole system, and a facility of swallowing, which is not usually done easily by the patient laboring under this malady in its active stage. Much of this tension, fullness and unpleasant sensation about the brain, is promptly relieved by this operation.

When the proposal is made to the patient to take an emetic, he very frequently declares his inability to do so, stating that he is unable to swallow; but he soon has occasion to change that opinion after swallowing the first dose or two. The feet of the patient should, after the vomiting is over, be immersed in very warm

ley water, and his legs should be most thoroughly bathed for nearly half an hour by means of flannel cloths with active frictions, frequently immersing the cloths in the ley water, and making brisk and faithful frictions. The ley water should be as hot as could be conveniently borne. In the meantime, while this bathing process is going on, the patient should drink freely of some warm diluent drink, such as catnip, balm or sage tea, and, so soon as a very free determination is produced to the inferior extremities, the patient should be placed in bed, with hot bricks to his feet and legs, and continue to drink abundantly of the warm sweating teas above mentioned, in conjunction with the diaphoretic powders, until a very copious and general perspiration is produced, which should be continued for several hours. The diaphoretic powders should be given in doses of three or four grains every twenty minutes, until the perspiration is well established, and then less frequently.

A brisk operation with hydragogue purgatives will be productive of very beneficial results, by emptying the bowels, determining from the brain, and subtracting from the mass of the circulating fluids, such effete materials as should have been thrown off through nature's great outlets.

The practitioner should lose no time in applying suitable gargles to the throat; a commodious preparation for this purpose is made by taking sumach berries bruised, one tablespoonful, borax pulverized, two teaspoonsful, to which should be added a half pint of boiling water and vinegar, mixed in the proportions of equal parts; after steeping sufficiently, strain and sweeten well with honey, then gargle freely four or five times, or oftener, through the day, or used by means of a swab. This is a cooling, acidulated gargle, which is well calculated to diminish the existing inflammation, by exciting a more copious secretion and discharge of mucus. Another measure of decided value consists in the frequent inhalation of the vapor of hops, wormwood and catnip, boiled in equal parts of vinegar and water. This tends very much to loosen the mucus, and promote its separation from the inflamed surfaces, as well as to diminish the existing inflammation, and to increase the tendency to general perspiration. This should also be frequently repeated. A convenient plan of

carrying this into practice, consists in putting the bitter herbs, as well as the fluid in which they have been boiled, into a pitcher, covering over all the mouth except the spout, and inhale the vapor through this. Considerable benefit often results in these cases from the application of sinapisms to the throat, and the subsequent application of the bitter herb fomentation, renewed every few minutes, to the throat, for an hour or two at a time. This measure, too, has a strong tendency to encourage general perspiration, and would be very appropriate in connection with the use of diaphoretics. I have frequently observed very favorable effects to result from the application of hot, roasted Irish potatoes, applied to the throat, by first putting a half dozen or more, of common size, in a long woollen stocking, and applying them without breaking them in any degree; the stocking should be pinned on to keep its place. Being subject to attacks of this disease myself, I have often experienced, in my own person, the beneficial effects of this domestic application.

There is yet another local application which I am disposed to regard as a valuable one in the treatment of this disease. I refer to the frequent application of towels wrung out in cold water, and spread over the anterior parts of the neck and throat, or even wrapped entirely around the neck.

The foregoing measures should be varied, changed and repeated according to circumstances, especially the emetics, diaphoretics, and cathartics, all of which are of the highest value for the successful treatment of cases of this kind. When this disease assumes the chronic form, with a permanent enlargement of the tonsils, I would advise the use of an irritating plaster, placed over the anterior part of the throat, and renew it every day or two, so as to keep up a free purulent discharge for several weeks. Suitable alteratives should be used at the same time, and my own experience has led me to regard the *stillingia sylvatica* as an article of the first importance for this purpose. The root is the part used, in the form of infusion, decoction or syrup. If the decoction should be chosen, let it be prepared by taking two ounces of the bruised root and add one quart of water, and boil down to a pint; then strain and sweeten, and take from one to two tablespoonsful every two hours through the day. An

alterative syrup, prepared from equal parts of the eupatorium perfoliatum, and the root of the rumex crispus, and used as directed in the last mentioned medicine, will be found a valuable remedial agency. Emetics and cathartics will also be found useful in the chronic form of cynanche tonsillaris, as well as in the acute. So also will gargles, but they must be made more decidedly stimulating in order to be useful.

XI.

CYNANCHE TRACHIALIS: CROUP.

This is a disease which is almost peculiar to children, mostly under the age of seven or eight years. There are several varieties of this malady, making it somewhat difficult to select any name which would be sufficiently expressive of these varieties. Cynanche trachialis has, perhaps, as few objections as any other; yet it must be confessed that there are certain cases, the pathological characters of which are not expressed, or even hinted at by the use of this term, inasmuch as they are not inflammatory, and consist mainly, in a high degree, of vascular irritation of the mucous membrane of the larynx and trachia, in connection with a constant tendency to a spasmodic state of all the neighboring muscles and muscular fibres, without the least trace of inflammation.

It must be entirely clear to any one who understands the foregoing term, that it would be inapplicable as an appropriate, systematic appellation to any case in which there is no inflammation whatever. But for the want of a more comprehensive and appropriate term, custom has sanctioned the use of this thus far, and it is not probable that any one applicable to a greater number of cases can be devised. Croup has been defined, a disease in which there is inflammation or high vascular irritation of the laryngo-trachial mucous membrane, combined with a state of spasm of the interior muscles of the larynx, producing peculiar modifications of the voice; cough and respiration, such as a hoarse and ringing cough, a sense of suffocation and sonorous respiration, which are regarded as essential characteristic features of this disease.

Systematic writers have divided this disease into two varieties.

Some may make a third and a fourth. The varieties which are generally recognized, are the common catarrhal and the *pseudo membranous*, and the third, the *spasmodic*. This last mentioned, namely, the spasmodic variety, is not usually considered a distinct affection, but a modification of the catarrhal, according to the above mentioned division. It is, with great propriety, admitted by the advocates of this division, that the catarrhal may even run into the *pseudo membranous*.

Symptoms of the Catarrhal Croup. This often is preceded by the usual symptoms of common cold or catarrhal with bronchial irritation, or soreness of the throat, and perhaps chilly sensations, with more or less fever, before the peculiar ringing and hoarse cough is noticed; and in some other cases, however, the croupy cough and hoarseness precede the actual attack for a longer or shorter time, when, with or without the foregoing symptoms, the child is attacked with a paroxysm of hoarse cough and difficulty of breathing, of greater or less intensity, most commonly occurring at night, perhaps starting out of sleep, with the peculiar ringing, dry and sonorous cough, followed immediately by a shrill stridulous sound during inspiration. The patient is also affected with severe dyspnoea, which is often very distressing, the respiration being dry, wheezing, and often sonorous, as if the column of air was compelled to enter through a tube that was very much narrowed, with firm and very unyielding parietes. The sound produced has been compared to the forcing of a large column of air through a very narrow brazen tube. The voice of the child becomes very hoarse, rough, and sometimes only whispering. As long as the voice maintains its sonorous character, the prospect is that the case will not become pseudo-membranous, although it may temporarily be partially suspended during the active continuance of severe laryngeal spasms. This is an important point in the diagnosis. The little sufferer is extremely agitated with distress, is restless, and tosses himself about in almost every direction, and assumes a variety of positions; sometimes on his hands and knees, sometimes holding out his hands to bystanders and attendants, as if beseeching and imploring them for aid. The defective oxygenation of the blood begins to be seen in the livid expression of the countenance and lips, face full,

bloated and pale, and the extremities cold, pulse quite frequent, feeble and irregular, and the spasms appear to be relaxed, when there is often a partial tendency to syncope, and the patient breathes easier, a much larger quantity of air passes into the lungs, and he often gets some refreshing sleep. Such is something like the course that many of these cases pursue. In other cases, all the alarming symptoms mentioned in the foregoing sketch continue to increase, the patient's head being thrown back, with the mouth open, eyes prominent, the countenance expressive of the greatest agony, coughing often attended with a rattling sound, and insensibility and stupor usually close the scene.

In most cases of this complaint, the symptoms are very much better in the morning, and usually grow worse at night. Such is the course which may be anticipated, even though the patient may, in the general complexion of his symptoms, be actually improving. This disease, as it passes off, is apt to continue with occasional exacerbations and remissions, until it finally dies off completely.

Pseudo-membranous croup is very rare in this country compared with the catarrhal. The symptoms of both varieties may be nearly or quite identical at first, for some time, when the evidences of the pseudo-membranous begin to become quite clear, and the voice begins to change into a whispering, husky sound, losing its sonorous character, which is about the only reliable symptom we can depend on, with much certainty, to make the distinction. The cough also loses its sonorous character, becoming, in like manner, dull and husky; each attempt to cough is followed by a whistling or sibilant sound in inspiration, as if the air was passing through a narrow and tense tube; pains and soreness on pressure when much inflammation accompanies the attack. Crying, attempts at speaking and drinking, and mental emotions induce difficulty of breathing and cough. Swollen and darkened features occur, and great oppression and sense of impending suffocation. These violent and threatening symptoms relax, but only to be renewed with increased violence, until the little sufferer is entirely overpowered and is relieved by death. In some few instances, a membranous tube, longer or shorter, is discharged, which affords temporary relief at least. Some cases having proved fatal

after a discharge of this pseudo-membranous substance, it follows that no certain exemption from danger is necessarily consequent on the discharge of this substance. In the last stage of these cases there is complete extinction of the voice, a perfectly dry, light and unfrequent cough, and the voice is sonorous and wheezing. The child uses his utmost efforts to expand the chest, the nostrils expand and contract, the shoulders rise, the breasts heave, the head is thrown backward, and the child appears in the most agonizing distress, tossing and throwing itself about as much as its strength will allow, until the force of the disease finally overcomes it, and its struggles cease with life.

The diagnostic symptoms of pseudo-membranous croup are, early and sudden extinction of the voice, loss of sound in cough, the appearance of an albuminous exudation in the fauces, and the expectoration of portions of false membrane, which is regarded as the only certain evidence of this kind of croup.

Causes. The cause which most commonly produces this disease is cold conjoined with moisture, and the seasons of the year when it is most apt to prevail, are during the cold and variable seasons of spring, autumn and winter, and children between the ages of one and seven years are most apt to be the subjects of its attacks; indeed, they seem to be almost the exclusive subjects of it. A few instances, however, have been mentioned, in which it has occurred in adults. It has been known to result from the operation of various other causes—the recession of eruptive affections, such as measles, scarletina, small pox, and sundry others. It has been known to result from whooping-cough, to supervene on the progress of some inflammatory affections, as bronchitis and pneumonia; and irritating substances inhaled into the lungs, acting on the laryngo-tracheal mucous surface, produce the disease.

There appears to be something in the state of the sensibility of the child, which renders him much more subject to this affection than he is in after life. In what this peculiar condition consists, we are at a loss to know, but we can readily understand why the disease is more liable to prove fatal than in cases of adults, from the comparative smallness of the respiratory passages, and especially the rimaglottidis, in the child, when considered in

connection with the degree of development which the same part acquires in adult life. We find no difficulty in understanding the reason why this passage is so much more readily obstructed in infancy and childhood, on account of its want of proportionate development, a fact well understood by all who are intimately versed in anatomy and physiology.

Prognosis. As to the degree of danger in cases of this disease much will depend on the extent of the inflammation, and on the fact whether the case is one of this pseudo-membranous kind or catarrhal. The former is unquestionably the most dangerous variety, but it is by no means an easy matter to form a very accurate opinion as to the probable termination of any given case. The difficulty of reaching safe conclusions in reference to this matter is greatly enhanced by the fact, that a case may appear to be doing remarkably well at one time, and in an hour or two subsequently may assume a most alarming and threatening aspect, and pass on to a fatal termination in an inconceivably short time, thus putting at defiance all common rules of calculation by the great suddenness of its transition. As a general rule, however, catarrhal croup may be successfully managed, provided a proper course of management be pursued in the treatment, and it may with propriety be said, that the pseudo-membranous variety will also yield to a well directed course of medication. If the attack should come on very suddenly, with high fever and a very shrill sounding cough and difficult respiration; there is much more danger than when it is quite gradual in its approach, with less shrillness, hoarseness and difficulty of respiration.

There is a variety of croup which has been regarded by some of the systematic authorities as *spasmodic* exclusively, or at least mainly; but it is a matter of much question whether or no any case maintains a purely spasmodic character, throughout the various stages of its progress. My own observation in this form of disease would lead me to doubt the correctness of this division, for I have witnessed no case of croup which could be properly recognized as spasmodic. Cases which take place suddenly, and are unattended by fever, with very well marked intermissions in the violence of the symptoms, with very little if any cough;

which, when present is dry and there is no shrillness of voice—such cases (if any such exist) are regarded as spasmodic.

Eclectic Reformed Practice. The acetous tincture of sanguinaria canadensis, ictodes foetida and lobelia inflata, in the proportion of equal parts of each given to a child two or three years old, in doses of from a tea to a tablespoonful, mixed in a little warm sweetened water, every ten or fifteen minutes, till it vomits the patient two or three times very thoroughly, will usually be productive of much advantage in the treatment of this malady. This measure should be repeated as often as the difficulty of breathing returns with violence. Another very simple and remarkably efficacious measure will be found in the frequent and repeated applications of flannel cloths, dipped into equal parts of vinegar and water boiling hot or nearly so, and wrung out partially dry, and applied as often as once in three minutes, as hot as they can be handled, to the throat, covering them over with a dry cloth at each application. They subdue the existing inflammation and spasms, by exciting counter-irritation, and producing relaxation of not only the part locally, but of the whole system, and very generally produce a copious perspiration. The whole anterior part of the neck, as far down as to the upper portion of the sternum, should be covered with these hot cloths, and they should be continued as long as three or four hours in severe cases; but in mild cases not longer than an hour. During their application it would be an appropriate measure of treatment, to give a strong infusion of asclepias tuberosa and sanguinaria canadensis, to act as an expectorant and diaphoretic; and to insure more certainly the benefits of a freer perspiration, warm bricks or boiled ears of corn should be placed at the feet and around the body of the patient. King's Expectorant Tincture should be given in doses of a half teaspoonful, as often as it seems to be necessary, to promote the freedom of expectoration, and to excite a certain degree of nausea, which of course would tend to prevent the return of the paroxysms of cough, and give additional freedom to the respiratory function. Soaking the feet in hot ley water, and bathing the body freely with the same, tend to ameliorate the symptoms in a most decided manner, and should most assur-

edly be very often resorted to in the management of cases of this disease. As a topical application, a plaster of mustard to the throat will be found to exert a beneficial influence in cases of this complaint, kept on as long as the patient can conveniently bear it. Brisk and moderately efficient purgatives become quite necessary, especially when the bowels are inactive, as they often are in many cases of this malady.

XII.

PAROTITIS, OR MUMPS : — INFLAMMATION OF THE PAROTID GLAND.

This is one of the inflammatory diseases which are of a contagious nature, usually affecting the patient but once during life. Sometimes it may affect only one of the parotid glands, and subsequently the other, after a longer or shorter period has elapsed. Although the parotids are the usual seat of this affection, it is not necessarily confined to this locality, for by virtue of a peculiar migratory character which it possesses, we find it occasionally seizing on other parts of the body,—as, for instance, the brain, testicles in males, and mammary gland in females; the stomach, bowels, lungs, &c., are also said to be occasionally affected.

Symptoms. The first evidences of the attack are a sense of soreness and stiffness about the glands; a hard swelling takes place on one or both the parotid glands, which continues to increase till about the fourth day, when it gradually declines; the skin directly over the affected glands does not seem to suffer any very considerable change at first; however, when the swelling increases to a very considerable extent, the skin not only becomes more tense, but also acquires an additional degree of tenderness, but seldom becomes inflamed or red. The function of deglutition is to some extent affected, being somewhat more difficult than usual. There is commonly a slight degree of fever connected with the parotid inflammation, a costive state of the bowels, and a dry state of the skin,—urine small in quantity and high colored. As the inflammation subsides, it may occasionally happen that the testicles in males, or the mammary glands in females, become affected. Various causes may contribute to produce these changes of the location of the disease,—such as exposure to cold, getting the feet wet and cold, too much fatigue and exposure too soon after the disappearance of the swelling, or even during its

continuance. When translated to the testicles, the swelling and pain often increase rapidly, fever takes place, thirst, dry and hot skin, costive state of the bowels, and, in a word, the usual symptoms consequent on the development of active inflammation of that organ, and require a corresponding promptitude in the treatment for the relief of the patient. When translated to other parts, the ordinary symptoms which are consequent upon the inflammation of these parts, take place. The impression seems to prevail, to some extent, that there would be but little danger of a change of location from the original seat of this disease, after the subsidence of the symptoms of active inflammation; but so far as my own observations have enabled me to form an opinion on this subject, I have no hesitation in declaring that, after the inflammation appears to have subsided for two or three days, there is even more danger from exposure, and a greater liability to translation of this disease, than at any anterior period of its progress. I have known, in several instances, very severe attacks to take place some two or three days after the entire disappearance of swelling and tenderness in the glands. This species of inflammation is not very liable to result in suppuration.

Parotitis is most apt to affect children and young persons. It very rarely affects old subjects, and is much more prevalent during the cold and variable seasons of spring and winter than at any other period.

So far as it relates to this disease, there is very little or no danger in any case, so long as it may be confined to its usual location. It is more especially dangerous when translated to the brain, and in some instances of this kind, proves fatal in a very few hours. However, in some cases it is very bad when translated to the breasts, lungs or testicles.

Eclectic Treatment. Common, mild cases of parotitis, require but very little treatment. About the only measures really necessary are, to keep the bowels gently open, to keep moderately warm, avoid taking cold, and use some gentle diaphoretic measures,—such as a weak infusion of catnip, balm or sage tea. The patient should be very careful about the period of the subsidence of the swelling in the parotids, not to expose himself to cold; for, according to the observations I have had occasion to make in

reference to this matter, there seems to be a much greater liability to the occurrence of a transfer of irritation to some other part, than at any other anterior or subsequent period in the progress of the case. If, however, inflammation should develop itself in the testicles, as it most commonly does in the male subject, then the most active evacuant course of treatment should be pursued. A hydragogue purgative, composed of cremor-tartar and anti-bilious physic, 20 grains each, and 2 grains of podophyllin, should be given, and repeated, if the circumstances of the case are such as to demand repetition. In addition to this measure, the affected part should be thoroughly submitted to the action of the bitter herb fomentation, two or three times a day, and large poultices should be applied to the affected part, and it should be sustained by a T bandage; poultices of the *ulmus fulva*, or *althea officinalis*, are among the best applications.

But the practitioner should not overlook the importance, in all cases where this affection is translated to more important parts, to make a strong counter-irritation over the parotid gland, with a view to invite it back to its original seat. For this purpose, the immediate application of a very strong, stimulating liniment, and of a mustard plaster, will be necessary, and allow it to remain long enough to redden the part thoroughly. Dry cupping, in some cases of this kind, will be found very useful, when applied immediately over the parotid gland. Some cases are also much benefited by active emetics, and especially where there is much oppression. Nausea, or bilious vomiting, not unfrequently happens in cases of this kind.

Long continued nausea and thorough diaphoresis are often of singular benefit in the management of cases of this description. These effects may be induced by the means ordinarily depended on for their production. The yellow salve may be used as a discutient in the management of these cases, for the discussion of the swelling, with decided benefit.

Translations of this disease to the female breasts, to the brain, lungs, or any other part, should be treated on the same general principles as the inflammations of those parts, keeping in constant view the especial nature of the cases, and directing the medical management accordingly.

XIII.

ACUTE PERITONITIS : ACUTE INFLAMMATION OF THE PERITONEUM.

This is a disease which, in many respects, presents us with symptoms remarkably similar to acute enteritis, especially when the inflammation extends from that portion of the peritoneum lining the walls of the abdomen, to its various reflections which pass off to the intestines. Indeed, such is the similarity between these two cases, that, if they should be examined in their confirmed stages, it would be found a somewhat difficult matter to distinguish between them.

The symptoms are, lassitude, pain and soreness in the abdomen and also in the limbs, with occasional slight chilly sensations, sense of weight and oppression in the epigastric region. The pain, in the first instance, appears to be confined to a particular part, and afterwards becomes diffused, and is quite constant and harrassing. Sometimes fixed and at others wandering, it becomes very intense, and the patient lies on his back, with his feet drawn up, carefully avoiding all motion on account of the pain which follows ; and the patient further protects himself from the effects of injury, by having his shoulders elevated, to prevent the compression of the abdominal contents. The bowels are constipated, often obstinately so ; the walls of the abdomen are often very much hardened ; the tongue is often moist and white ; the pulse small and hard ; considerable fever, with pallid and sharpened features. In many cases of this kind, there is almost constant wakefulness during the whole course of the disease ; the breathing becomes laborious and inspiration very difficult, accompanied with distressed aspect of the countenance ; and not unfrequently there is a suppression of the urine,—indeed it is quite a common

occurrence. Peritonitis is a disease of rapid progress, and goes on in some instances to a fatal termination with great rapidity.

Causes. Among the causes which are concerned in producing this affection may be mentioned the sudden suppression of perspiration by exposure to cold; mechanical injuries of the abdominal viscera; extravasation of blood, pus or bile into the peritoneal cavity; long continued and violent corporeal exertions; a stric-tured state of the colon or rectum; cold or wet on the surface of the body; drinking cold water when the surface of the body is in a state of perspiration; sudden suppression of discharges, especially the hemorrhoidal.

Prognosis. A favorable condition in the state of the patient is indicated by a subsidence of the pain and fever, a moderately moist and warm state of the skin, sedimentous and freer state of the urinary secretion, diminution in the abdominal soreness, a moderately full and frequent pulse, free discharges from the bowels, power of changing and resting on either side.

The unfavorable signs are, a sense of weight in the abdominal cavity, with chilliness of an irregular character, coldness of the extremities, a feeble and soft pulse, a gangrenous condition being indicated by a sudden and entire cessation of pain, great prostration, with a very small and frequent pulse, and a cadaverous and hippocratic countenance.

Morbid appearances are, that the peritoneum is found thickened, and often false membranes interposing between the peritoneum, lining the walls of the abdomen, and that investing the abdominal viscera, a collection of fluid which is of a turbid whey like character; on some occasions, it is of a reddish and of a bloody nature.

Eclectic Reformed Treatment. Podophyllin in divided doses will be found a medicine, in many cases, of surpassing value. Perhaps the most commodious method of administering this agent would be to give it in a little sweetened water, in doses of one-third of a grain, every two hours, until it operates very copiously on the bowels; also it produces nausea and vomiting very frequently, which may be regarded as the evidence of a more thorough and complete influence on the system. This medicine should operate some five or six times on the bowels before we

cease to administer it. It is certainly an interesting fact in regard to its operation that it exerts a specific influence in controlling inflammation, independent of its evacuant power. This effect has been so repeatedly observed as to leave no room whatever, to doubt that such an effect takes place.

It not unfrequently happens that the whole of the symptoms of an attack like this, are carried off by one single operation from this truly valuable medicine. I have often witnessed all the phenomena of a very well marked attack, pass off under this medium, especially as this inflammation develops itself in connection with the puerperal condition.

In addition to this, it is proper to remark that much advantage may usually be obtained in the treatment of this malady, by suitable counter-irritating means, such as extensive mustard plasters over the whole of the abdomen. Of strong stimulating liniments, the following formula makes a valuable one: say take equal parts of the essential oils of sassafras, cedar and cloves, mix and apply it as often as once in two hours, as long as the inflammation appears to be severe. An extensive poultice of roasted onions will be found very good in the management of this disease, when applied after other more efficient and powerful counter-irritating applications; this application produces a very relaxing effect on the abdominal walls and the contained viscera, and also seems to produce a most decided effect on the kidneys, increasing the urinary secretion to a very considerable extent, and thus relieving the symptoms of inflammation. This effect seems to be pretty certain to take place, if the application should be made either on the back or abdomen, and allowed to remain a suitable length of time. It will be useful to make the root of the *althea officinalis* into a poultice, by first cutting it into transverse slices, and bruising it well in an iron mortar, then simmering it in sweet milk and stirring in a suitable quantity of corn meal, to form it into the consistence of a poultice, and apply it over the whole extent of the abdomen, and allow it to remain a short time, or until it begins to become dry; then substitute it by the application of a new one, and thus continue it, if necessary, for a day or two. At the same time it will be found highly useful to allow the patient to drink copiously of a strong infusion of the same; it acts bene-

ficially in cases of this kind, and will be found eminently worthy of confidence in all similar cases, especially such as are complicated with irritation of the urinary organs.

Diaphoretics will also be found very good in this disease ; the common sweating powder, from its tendency to produce a lax state of the bowels, and to act on the hepatic organs, is very well suited to this case.

The importance of alkaline bathing should never be lost sight of in this, nor indeed, in any inflammatory or febrile disease, and should be industriously carried into effect at all times, when there is a dry, constricted and harsh state of the skin, or an increase of temperature of the surface.

XIV.

CHRONIC BRONCHITIS: CHRONIC INFLAMMATION OF THE BRONCHIAL TUBES, BRONCHIAL CONSUMPTION.

This is a very frequent disease, and not unfrequently occurs in a mild form with such symptoms as a mild cough and moderate expectoration, diminishing or disappearing on the approach of warm weather, and again returning, to some extent, when the cold season commences, and may thus continue for a considerable length of time; in other cases it soon passes off spontaneously.

Symptoms. So far as most of these cases are concerned, they are marked by the following symptoms, viz: troublesome cough, attended with copious expectoration of a kind of viscid mucopurulent matter; sometimes, however, it has a whitish or frothy appearance; oppressed and difficult respiration; occasionally there is a wheezing respiration; a sense of weight or uneasiness over the whole epigastrium; loss of appetite; a slightly furred tongue; a hurried breathing towards evening, with slight febrile paroxysm, with deep red and scanty urine; more cough in the morning than at any other time of day, with a more copious expectoration; also, sometimes the matter thrown up is streaked with blood. As the disease advances, emaciation takes place, shortness of breath, greatly increased by active exercise, transient pains in the chest, inhalation of smoke, dust, or fine vapor, always produce cough; sometimes a sense of soreness and heat are felt in connection with the oppression in the chest; night sweats and great debility, and with the general symptoms of confirmed consumption.

Physical Signs. Mucous rales may be heard over the whole or a part of the chest, in connection with the sibilant and sonorous, shifting quite frequently. It often becomes somewhat difficult to make the distinction between this disease and real phthisis.

An equable resonance upon percussion, the absence of any signs indicating consolidation, or cavernous resonance, may be relied on with considerable certainty.

Prognosis. Cases of this complaint may be regarded as dangerous when the scrofulous diathesis obtains, in consequence of the constant danger of developing tubercles; but in most common cases in which there is no constitutional taint, they may be regarded as being considerably under the control of a properly directed course of medication, and, indeed, can be cured quite frequently. The danger of this malady is considerably increased in cases produced by a recession of some eruptive disease, and inasmuch as they are found to resist treatment more obstinately than common cases of this disease, much, very much will depend on the course of treatment pursued. Results have been reached in cases of this malady by eclectic practitioners which have served greatly to astonish the routine, orthodox practitioners of the day. Cases which have been regarded as beyond the reach of successful remedial management, and given over as hopeless, have, in very many instances been cured with great facility by eclectic reformers.

Anatomical Characters. The mucous membrane of the bronchial tubes is found in a thickened and inflamed state, and in some few cases in an ulcerated or softened condition, and very generally filled with a puruloid mucus, or at least lined pretty thickly with this fluid. The lining membranes of the tubes vary in different cases as it regards their appearance considerably, in some cases they present a greyish white appearance, in others a decidedly inflamed and reddish appearance, and in others again a dark-reddish or brownish appearance.

It happens in cases of this complaint, that the tubes are dilated with a thickening of their coats in some instances; but in others, they are constricted to such an extent as nearly to obliterate their cavity.

Causes. The chronic form of bronchitis is not unfrequently the consequence of an acute attack, when not speedily and properly subdued. The gradual operation of irritating causes, which at first only serve to weaken the restorative powers of the membrane, may gradually develop a state of slow irritation, which

may finally lead to the production of well settled chronic bronchitis. Of all other cases, perhaps none are so prolific in producing this disease as neglected catarrhal affections. They are indeed, remarkably apt to grow into this disease. It is in some cases produced by the recession of the eruptions in measles and of other eruptive affections, and by atmospherical vicissitudes. Among the artizans, who are most exposed to become the subjects of this disease, may be mentioned millers, needle grinders, stone cutters, and all such others as are compelled to inhale abundantly irritating vapors and dust of any kind, almost constantly. It sometimes follows whooping cough.

Eclectic Reformed Treatment. Occasional mild and efficient emetics will be found to be of the utmost value in the treatment of this disease, as a general rule, as often as once in four or five days, for the first two or three weeks, and after that, much less frequently; and when costiveness prevails, a brisk, easy and un-irritating cathartic, such as pulverized leptandria virginica and anti-bilious physic, of each a teaspoonful, given in a little syrup or tea. Those cases which are marked with the evidences of hepatic torpor, will usually require cathartic treatment. The neutralizing physic will be found well adapted to the treatment of the cases of young children, and very weak and debilitated old persons.

The pulmonary syrup, given in doses of from half to a wine glass full every four hours through the day, will be found a highly valuable means of treatment, and well calculated to produce beneficial effects in this form of disease. It seems to promote the freedom of expectoration, and exert a healing influence on the respiratory surface, and likewise promotes the expectoration of the mucus from the bronchial tubes. The following compound will be found very useful in the treatment of this form of disease, taken as a pretty constant medicine; say take of ictodes foetida, ʒiij; juniper berries, ʒij; lycopus virginicus, ʒj, all bruised, or pulverized coarsely, mix, and to two tablespoonsful of this compound, add one quart of boiling water, and simmer it for some time, till the strength is out; then give the patient, after straining it, as much as a wine glass full, five or six times a day. This seems as a general thing to exert a very beneficial effect; it quiets

the cough, facilitates the expectoration, improves the breathing, and increases the urinary secretion and promotes the discharge of it.

The patient may avail himself of the benefits of the inhalation of medicated vapor with much advantage. For this purpose, take equal parts of hops and catnip, boil them well, and then inhale the vapor freely. It usually exerts a very beneficial influence; these inhalations should be used freely as often as twice daily. A combination of equal parts of the saturated tinctures of *sanguinaria canadensis* and *macrotys racemosa*, taken in doses of from one to two teaspoonsful every two hours through the day, I have often used in conjunction with the pulmonary syrup, with the most decided advantage; it not only acts as a valuable expectorant and diuretic, but by its powerful sedative influence it diminishes the frequency of the pulse, and increases its fullness. Great advantage is obtained in the treatment of this case by the application of an extensive irritating plaster over the chest, and keeping it discharging copiously for several weeks. The benefits of this measure are not by any means confined to its counter-irritating effects alone, but it is so constituted as to be readily absorbed; at least, such are the facts with regard to some of its constituent active principles, that they very readily pass into the system and tend to produce, in many cases, a more active alterative influence than almost any similar medicines would do by being taken internally; indeed, the value of this measure is almost incalculable in the management of many forms of disease.

The nauseating and expectorant drops, directed for the treatment of the acute form of bronchitis, are remarkably well adapted to the treatment of the chronic form of the disease; given in doses of from one to two teaspoonsful, they do not fail to afford in almost every case very decided benefit, being remarkably well adapted to the promotion of the freedom of respiration and of expectoration, removing in an efficient manner the sense of constriction and oppression which are prominent features in this complaint.

XV.

CYNANCHE LARYNGEA : INFLAMMATION OF THE LARYNX.

Until within a comparatively recent period, the attention of medical practitioners has not been drawn to this as a separate and distinct form of disease. Many of the older writers were in the habit of blending this affection with croup, but it is now pretty well understood as a distinct disease, and is so described by most of the more modern systematic writers, some of whom have divided it into three varieties, namely : mucous laryngitis, affecting the mucous membrane mainly ; sub-mucous laryngitis, in which the sub-mucous cellular tissue appears to be the principal seat, and a considerable amount of swelling usually accompanies it ; and the pseudo-membranous laryngitis, in which a false membrane appears to be formed, as in the same variety of croup.

The mildest form of the mucous laryngitis is marked by a slight hoarseness of the voice, without pain or oppression or difficulty of respiration, and also with very little or no cough, and passes off, in most instances, without any medical interference ; but when the attack is a little more severe, in addition to the above symptoms, there is a sense of soreness, with tightness or stricture on the larynx, or at least in some part of it ; a dry, husky cough, and very often a slight difficulty in the act of inspiration. These symptoms are usually very speedily relieved by the use of a proper medication. But the disease occasionally attains a still higher grade of inflammation, and then the voice is nearly entirely suppressed from the very commencement ; or, at least, after having, for a short time, been very hoarse and stridulous, it becomes a mere whisper ; the pain in these cases is of various degrees of violence, and is always increased by speaking and coughing, or by

the application of pressure over the part affected. The patient feels as if there was a foreign body in the larynx; the cough is hoarse and the attempt results in a kind of grunting noise; a distressing constriction of the throat is felt at all times; but very little, or scarcely any thing is raised by the act of coughing, and there is often difficulty of deglutition. Sometimes very severe paroxysms of dyspnoea and oppression of respiration are experienced by the patient, the mucous membrane is considerably swollen, and there is more or less fever, and redness of the epiglottis may be noticed when the root of the tongue is pretty well depressed.

Sub-mucous laryngitis is another variety of this malady, according to the arrangement of some of the systematic authors, but is in reality to be regarded only as a more severe form of the preceding variety, with an aggravation of most of the symptoms; such as, the voice becomes wheezing or whispering at an earlier stage of the attack; the attempt to cough is agitating, convulsive and very distressing; inspiration becomes exceedingly difficult, and is accomplished only after the most violent efforts and a sense of impending suffocation; the patient is extremely restless, sometimes starting up suddenly from bed, sleeping but a few minutes at a time, and indicating by all his conduct, the most intense restlessness, anxiety and apprehension; the blood soon begins to show signs of deficient oxygenation by the livid aspect of the lips, and, indeed, by the paleness and lividity of the whole countenance; smallness of the pulse; a cold sweat, with a rapid exhaustion of all the vital powers, and a gradual extinction of life itself takes place. This would be the ordinary course of this disease when not relieved by proper treatment. The cause of death, in cases of this kind, is undoubtedly from a deficiency in the quantity of air admitted into the lungs to produce the desired vivification of the blood, and this fluid becomes incapable of stimulating the different parts and organs into a proper kind of action.

This disease is usually regarded as a very dangerous affection, more so than any other form of inflammatory disease. It runs its course with great rapidity, often terminating fatally in from two to five days. George Washington, the lamented father of

his country, is said to have died of this complaint, but it must be admitted that it is by no means a frequent disease.

The *pseudo-membranous* form of this disease, bears a strong analogy to the same variety of croup, and it is, indeed, a matter of question whether it ought to receive a separate and distinct consideration. There is so great a similarity in their symptoms, progress and danger, as to make them very nearly the same thing, if not identical, as to all the intents and purposes of a practical consideration. I shall therefore reserve any further remarks I have to make on this subject for the ensuing chapter, when the circumstances connected with the pseudo-membranous form of disease, as it connects itself with the respiratory passages, will be noticed with becoming particularity.

Morbid Appearances. The lining membrane, as well as the subjacent cellular membrane of the larynx, usually exhibits the marks of inflammation; such as a thickened and softened state of the membrane, not only covered over with matter, but having a considerable accumulation of matter and serous fluid in the cellular substance beneath the mucous membrane.

Causes. The cause which, in all probability, exerts the most decided influence in producing this disease, as, indeed, most other inflammatory diseases, is cold, applied either locally or generally, particularly when the patient is much fatigued or in a state of perspiration. Some writers seem to think there is a peculiar liability to this disease in all such persons as are specially subject to cynanche tonsillaris, which does not seem to have been sustained by my own observations, but, on the other hand, they seem to be quite independent of each other. Scalding water attempted to be swallowed, a continued and powerful exertion of the voice for too great a length of time, corrosive gases, a flame of hot air, and mercury may produce this case. Typhoid fever, measles, scarlet fever and smallpox, all have been charged with exerting an instrumentality in producing this difficulty at different times.

Eclectic Reformed Treatment. There is, perhaps, no disease which requires a more vigorous and energetic treatment at first than this. With a view to this matter, active evacuation, particularly by lobelia emetics, becomes a matter of the first importance,

These, in most instances, should be continued for a long time. The rum sweat, as a powerful means of producing a permanent equilibrium in the state of the circulation of the blood, should be vigorously carried into effect at an early stage of the disease, and should be aided by a liberal use of diaphoretic and slightly nauseating teas, such as the decoction of *sanguinaria canadensis* and *asclepias tuberosa*, each equal parts, made by adding one pint of water to one ounce of the compound, and boiling for one half hour, or until the strength is extracted; apply as hot cloths on the larynx as can be handled and wrung out partially dry, every three minutes, as a counter-irritant and to aid in the production of perspiration. Scalding water, added either to tobacco or stramonium leaves, should be applied as above directed, in regard to the cloths, and in all probability the desired effects of relaxation and reduction of the inflammation will result.

The expectorant tincture should be given so as to induce some nausea and relaxation nearly all the time. I have known very beneficial effects to take place in this case from a brisk and active cathartic, composed of 30 grains pulverized mandrake, and the same quantity of anti-bilious powder, and if it does not operate freely in three or four hours, then give a second dose. This compound usually operates as an emeto-cathartic, and exercises a very favorable influence in this case.

In the chronic form of this complaint, the treatment necessary for the case would bear about the same relation to the course advised in the acute, as it ordinarily does in most other inflammatory affections.

XVI.

PLEURITIS OR PLEURISY: INFLAMMATION OF THE PLEURA.

This is an inflammatory disease of very frequent occurrence, affecting the pleura on one side, but sometimes on both sides, occasionally affecting both the pleura costalis and pulmonalis, but more frequently confining its principal effects to the costal portion of the pleura. In most bad cases, however, the inflammation, after commencing on the pleura costalis, extends on the principle of continuous sympathy to the pleura pulmonalis, and from thence, by the strength of contiguous sympathy, to the substance of the lungs, which is indicated by the supervention of additional symptoms.

Symptoms are severe ; frequent and lancinating pain, decidedly increased by inspiration, thus causing that act to be materially abbreviated. There is also a dry cough, which is always accompanied with pain and the expectoration of a colorless sputa. The attack is not unfrequently ushered in with a distinct chill, followed by fever of greater or less intensity, according to the severity or extent of the inflammation. The sense of chilliness, however, may be very slight, and may precede or succeed the occurrence of active pain ; the pulse hard and frequent ; a general diminution of the secretions, especially those of the skin and kidneys ; a general flush on the face, not distinctly circumscribed, but very gradually lost in the surrounding parts. Respiration is short, difficult and painful, being performed principally by the abdominal muscles ; the intercostals remaining in nearly a quiescent state ; thirst, and a costive state of the bowels, with a whitish coat on the tongue ; in some cases the patient is nauseated and a bitter or rather a bad taste in the mouth ; headache and

restlessness, with an inability to lie on the affected side, the patient often desiring to occupy a position intermediate between that on the side and on the back; he endeavors to suppress the cough on account of the pain it gives him. If there should be an extension of the inflammation to the substance of the lungs, the matter expectorated will be tinged or streaked with blood.

Instead of the pain being of the severe character above described, it only amounts to what is called a stitch and a slight sense of soreness; pressure on the intercostal spaces is productive of much pain. Such is a brief outline of the symptoms of this affection as ordinarily present in acute attacks.

Pleurisy is liable to become chronic, in which case the symptoms are less severe, and in several other respects considerably different from those of the acute form. The patient usually complains of pain, soreness, and sometimes a sense only of vague uneasiness in the side and chest; cough, in some cases, with but little expectoration; in others the expectoration is copious, and it may be either mucus or muco-purulent; the most general and constantly prevalent feature is that of dyspnœa, which, in some cases, is very distressing, and in others less severe; the chest is often considerably enlarged on the affected side, the enlargement being particularly conspicuous on the affected side and towards the lower portion of the chest—this enlargement having the effect of increasing the width of the intercostal spaces. This enlargement of the capacity of the thoracic cavity on the affected side is mainly attributable to an accumulation of a sero-purulent fluid in the pleural cavity. The patient becomes pale, emaciated, and with a slight hectic kind of fever, with morning remissions and evening exacerbations, not unfrequently accompanied with night sweats; a burning sensation in the palms of the hands and soles of the feet. There is a displacement of some of the abdominal viscera to some extent, such as the liver, spleen, stomach, and colon in a downward direction, so much so as, in some instances, to cause the margin of the liver to project beyond the edges of the ribs. It often happens that there is a displacement of the heart, pericardium and mediastinum, by the nature and position of the accumulation. Percussion, when applied, produces a very dull sound. The symptoms, in many of these cases, are such as are

usually found connected with the more advanced stages of that form of consumption, which arises from chronic inflammation of the pleura, and may with propriety be considered as such.

Causes. Exposure to cold is by far the most frequent cause, and the certainty of its influence is greatly enhanced by the individual being in a state of relaxation and perspiration, or in a state of debility from fatigue. This disease may, however, result from external injuries of various kinds, or from the translation of gout or rheumatism; also from recession of numerous eruptive diseases, from the suppression of customary evacuations, from the premature healing of old ulcers, exposures to moisture and dampness. And it may be produced by some peculiar epidemic constitution of the atmosphere, and, like other epidemics, prevail generally.

Diagnosis. This disease may be confounded with inflammation of the lungs by a careless and inattentive observer, but may be pretty readily distinguished from it. The pain in pleurisy is of a severe lancinating and shooting character, greatly aggravated by a deep inspiration or by a cough. In peripneumonia the pain is duller, of a heavy and oppressive character, and not so pungent and shooting, except when there is an extension of the inflammation to the pleura, when the character of the pain, as a diagnostic, cannot be relied on with any certainty. The matter expectorated in pleuritis is mucus—transparent, whitish and viscid, and as a general rule, free from blood, except in those cases in which the inflammation extends to the substance of the lungs, when it exhibits streaks of blood. In peripneumonia it is viscid, and tinged with blood. A deep inspiration is not productive of so much pain in peripneumonia as in pleuritis. Percussion produces the same sound on either side in pleuritis, but a dull sound on the affected side, and a clear one on the unaffected side in peripneumonia.

Notwithstanding pleurisy is a very painful disease, yet if the treatment be conducted in a proper manner, there is ordinarily but little danger of a fatal termination.

Eclectic Reformed Treatment. The treatment in cases of pleurisy should be commenced, generally, by the use of a moderately mild and efficient emetic, and for this purpose, none answers a better purpose than the acetous tincture of *sanguinaria canadensis*.

sis and lobelia inflata, in doses of from one-half to a tablespoonful, given every ten minutes, mixed with a small quantity of a strong infusion of eupatorium perfoliatum, until it produces full, free and copious vomiting, at least as often as three, four or five times. Many patients object to this practice, on the ground that the act of vomiting will be productive of too much pain and distress. But they soon see the groundless character of their fears, after having swallowed a dose or two, and the relaxing effects of the medicine begin to be manifested. It is also very proper, immediately after the sickness begins to subside, to take measures to insure a copious perspiration, by soaking the feet thoroughly in hot ley water, and sponging or bathing the legs in the same. The patient should also be directed to drink copiously of a decoction of asclepias tuberosa and eupatorium aromaticum, equal parts, say one half ounce of each, added to one pint of boiling water, and after allowing it to steep half an hour or longer, it should be taken in doses of from two to three tablespoonsful every ten or fifteen minutes, placing, at the same time, a hot brick to the feet, and an extensive mustard plaster to the side affected, and allow it to remain as long as may be necessary to redden the skin completely, and relieve the pain. For the purpose of promoting perspiration, after the removal of the plaster, a bitter herb fomentation should be applied as hot as can be conveniently borne, and changed frequently; the bag containing the herbs should be wrung out and its application renewed as often as once in ten minutes. This not only aids powerfully to produce the desired moisture of the skin, but also answers a valuable purpose as a counter-irritant, and should be especially used in connection with other efforts to produce perspiration. The frequent repetition of the mustard plasters, when there is very severe and intense pain, is a measure of primary importance, and should, by no means, be neglected by the efficient and energetic practitioner.

The bowels also ought to receive a due share of attention. The common hydragogue purgative will be found a very useful form to depend on for purgation in this case, and should be promptly administered, in doses of from one to two teaspoonsful every two hours, until it operates freely three or four times. The emetics

ought be repeated whenever the circumstances of the case are such as to make their repetition a desirable matter.

The application of strong stimulating liniments over that portion of the chest, on which the principal affection seems to exist, will be useful. The following combination of the following essential oils seem to be well adapted for this purpose, in connection with the tincture of capsicum. Take tincture of capsicum ʒiv , oils of cloves, sassafras and cedar, each ʒij , mix, and rub the parts affected some four or five times daily.

Much advantage in the treatment of pleurisy often results from the use of a strong infusion of equal parts of *eupatorium perfoliatum* and *asclepias tuberosa*, in connection with one fourth of a part of pulverized root of the *sanguinaria canadensis*; one quart of boiling water should be added to one ounce and a half of the compound, and be allowed to steep half an hour, and from two to three tablespoonsful should be poured off through a strainer, and sweetened, and be taken every half hour, with a view not only to produce diaphoresis, but also a slight sense of nausea, and a freedom of expectoration as well as to have some diuretic and laxative influence.

The application of large poultices of roasted onions to the side, and occasionally renewed, has been productive of much benefit in the treatment of this case. It appears not only to act favorably as a counter-irritant, but likewise well calculated to promote the ease of expectoration, and to increase the urinary discharge, all of which indications it is highly desirable to fulfill in the treatment of this malady.

In cases where there is great activity and concentration of pain, which does not yield promptly to ordinary measures, scarifying and cupping the side may be found of the utmost importance to the relief of the sufferings of the patient. Another simple measure may be mentioned as worthy of adoption and confidence, namely: the inhalation of the vapor of bitter herb fomentations, such as hoarhound, catnip and hops, with a view to aid in the production of diaphoresis, and to render the expulsion of tenacious mucus a matter of much greater ease to the patient than it would be without such an agency. Occasionally, much good may be done by taking a good rum sweat in the earlier

stages of the attack, which is conveniently done by placing a common saucer under a chair, filled with spirits sufficiently strong to burn by the application of a taper, taking care at the same time to have the chair sufficiently elevated, so as not to endanger the burning of its bottom, also to surround the patient's body, with the exception of the head, after divesting it of clothing, with a blanket so wrapped round as to confine the steam or vapor of the burning spirits. This should be in operation as long as from ten to fifteen minutes, which has the effect of producing a copious perspiration, and it will be found well to continue the use of warm diluent drinks, after placing the patient in bed and putting a hot brick to his feet. The patient may thus be kept in a state of perspiration almost any length of time that may be thought desirable.

So far as it relates to the treatment of chronic pleuritis, we should be guided in the selection of our measures by the peculiar condition of the patient, and the state of the case generally. Some of the measures already advised for the *acute* form will have an appropriate application for the *chronic*; such as emetics, and mild cathartics, and laxatives. Emetics ought to be given as often as once in a week in most of these cases, in some instances more frequently; so also ought purgatives. The strong infusion of apocynum cannabinum and asclepias tuberosa, equal parts, should be taken freely for the sake of its laxative, expectorant and diuretic properties. An infusion which is prepared by adding one ounce to a pint of boiling water, should be given in doses of one or two tablespoonsful every hour or two through the day. An irritating plaster should by all means be applied on the affected side, and kept discharging liberally for several weeks, and should be renewed as often as once a day. A valuable expectorant preparation and alterative, is equal parts of the tincture of sanguinaria canadensis and macrotys racemosa, given in doses of a teaspoonful once an hour or two; this compound not only acts as an excellent expectorant, but also as a valuable sedative, diminishing the general irritability of the system, and the frequency of the pulse, and increasing its fullness.

The pulmonary syrup will be found a valuable medicine in the treatment of this form of malady, in doses of a wine glass full,

morning, noon and night, half an hour before eating. Bathing the whole surface of the body with a preparation of equal parts of ley water and common whisky, once or twice a day thoroughly, will be found a useful auxiliary in the treatment of this case ; at least in most cases.

XV.

PNEUMONIA—PERIPNEUMONIA: INFLAMMATION OF THE LUNGS.

This is a disease of pretty frequent occurrence, and its attacks are usually ushered in by a well marked chill, especially in cases of adult persons, with a sense of much soreness and oppression in the region of the lungs, sometimes affecting one and sometimes both lungs. The chill is succeeded by a febrile paroxysm, which may continue a longer or shorter time, with its characteristic intensity. The patient has more or less pain, which is increased by a deep inspiration, which may precede, accompany, or follow the fever, but more commonly accompanies it. The severity of the pain will be proportioned to the extent and intensity of the inflammation, and will have a more decidedly lancinating character when the pleura is more especially involved in the inflammation. Indeed the darting, shooting and lancinating character of the pain, is almost exclusively owing to this circumstance, and coughing or pressure on the intercostal spaces, is calculated to increase it. The sharpness and the severity of the pain decline as the patient comes under the influence of appropriate treatment. In some cases, instead of the pain mentioned, there is only a sense of oppression and soreness, which may be increased by taking a deep inspiration. The breathing is always quickened to the number of fifteen or twenty per minute above the natural standard of frequency. There is always a feeling of oppression in the chest, which is increased by every attempt to talk or make use of any thing like a muscular effort. When the dyspnœa is very violent, with a deep purple hue of the countenance, much danger is indicated. Cough, more or less severe, is always present; it is at first somewhat dry, and very little is expectorated; but, as the case advances, the expectoration increases. At first, it consists

mostly of a tenacious, ropy, transparent mucus, which is quite difficult to raise, but it soon afterwards becomes somewhat of a rusty or reddish color, being stained more or less with blood, often pretty uniformly mixed with the tenacious, semi-transparent mucus, bearing some resemblance to port wine. In some cases the cough is not accompanied with pain; in others, it is exceedingly painful and severe. The character of the matter expectorated is, in all probability, the most reliable symptom to indicate the exact nature of the disease. As the disease advances towards a more favorable state, the expectoration becomes much easier, and there are much larger quantities thrown off, which are much less tenacious. Sometimes nearly pure blood is thrown up, but cases of this kind are not very frequent. The degree of fever in these cases is remarkably various, amounting in some instances to an almost imperceptible degree of excitement; in others, to a very intense degree of excitement. The amount of excitement noticed in cases of children, varies in a great variety of ways, both in respect to its intensity and continuance. Indeed, the same may be said with regard to nearly all the prominent symptoms in cases of children, for nothing of the same uniformity of character marks these cases. Although the essential nature of the disease may be the same, yet their manifestations are in very many cases unlike. In addition to the symptoms already named, the flush on the face is more distinctly circumscribed than in any case in which the pleura is implicated in the inflammation to any considerable extent, as in some cases of pneumonia, in which the lungs alone are the seat of affection. The fever present assumes the remittent form, having morning remissions and evening exacerbations; the pulse is full and strong, and only moderately accelerated; considerable thirst, and dry, hot and constricted state of the skin; urine high-colored and diminished in quantity; tongue having a white coat on its surface, and afterwards a darker and thicker crust; loss of appetite is great, and there is usually a costive state of the bowels. In a very few instances, the patient is very slightly affected with pain or cough, yet they are said to be entirely wanting in some instances. In well marked cases of this kind, percussion produces a dull and somewhat flat sound. Auscultation throws considerable light on this subject, especially indica-

ting the stage, degree and extent to which the lungs are affected. A sedimentous urine occurring in connection with a gently moist and soft state of the skin, is justly regarded as a favorable symptom, respecially when accompanied by an easy and more copious expectoration, and with diminished frequency and increased freedom of respiration. In those cases called double pneumonia, where both lungs are inflamed, the strength is much more rapidly exhausted, and the countenance is much more affected with an appearance of anxiety.

Diagnosis. Peripneumonia is distinguished from pleurisy, by the pain being of a dull, heavy and oppressive character, whereas in pleurisy it is of a sharp, lancinating nature; the flush on the cheek is pretty distinctly circumscribed and abruptly terminated in pleurisy, more diffused in peripneumonia; the patient lies on the sound side in pleurisy, on the affected side in pneumonia. Percussion produces on the affected side in inflammation of the lungs, a dull sound, and in pleurisy the same sound on both sides, which is clear. Pressure on the epigastric region, upward towards the lungs, in peripneumonia, produces cough, oppression and a sense of suffocation and pain, but in pleurisy the pain and sense of oppression is not materially aggravated. Pressure on the intercostal spaces, increases the pain very much in pleurisy, but not so in inflammation of the lungs. A deep and full inspiration, aggravates the pain more in pleurisy than in pneumonia.

From bronchitis of the acute kind, this affection is distinguished by the character of the matter expectorated. In peripneumonia it is of a rusty, viscid character, and in bronchitis it is more abundant, but not so tenacious or viscid. The sensations in the chest, in bronchitis, are more those of oppression than pain. In bronchitis, there is a decided pain over the eye; not so in pneumonia. There is a diffused flush on the cheek in bronchitis, and in pneumonia it is circumscribed when the inflammation is confined mainly to the lungs. There is in bronchitis a sense of oppression rather than of pain, in the chest; not so in cases of inflammation of the lungs, the sensation being that of pain of the dull and somewhat oppressive kind. The symptoms will serve to make the necessary distinctions in these two cases.

Prognosis. This is by no means a very fatal disease, especi-

ally under the preservative influence of a well regulated course of treatment. In all its ordinary forms it has yielded with astonishing rapidity to the mild yet efficient power of the curative means of the eclectic practice. The fatality mentioned by most of the systematic writers of the old school, without doubt, is in a great measure attributable to the defective measures of medication, more than to any necessary fatality in the character of the disease. When it occurs in children, it is not so readily managed as when it takes place in adults, neither are the evidences which we depend on for its recognition so readily perceptible, but a careful and scrutinizing examination scarcely ever fails to lead us to correct conclusions on the subject.

Causes. The causes which may produce this disease are quite numerous, and among those which are most frequent in their operation may be mentioned vicissitudes in the weather, exposures to cold and moisture, especially when the individual is in a state of perspiration, after having undergone some fatiguing exercise. This is more especially apt to produce an attack when the patient is laboring at the same time under the influence of catarrhal affections. Violent exertion of any description is very apt to lay the foundation for an attack; excesses in drinking, suppression of customary evacuations, are quite apt to produce it, as well as recession of eruptive affections, translation of gout and rheumatism, and wounds and injuries of various kinds.

Eclectic Reformed Practice. So far as it relates to the course of treatment which ought to be adopted in the management of this disease, I have only to remark that it ought to be similar to that already recommended in pleurisy, namely: by first administering an emetic composed of equal parts of lobelia seeds and leaves, *ictodes foetida*, ipecac and *sanguinaria canadensis*, the roots all finely pulverized, and given in doses of from half to a teaspoonful, mixed in a strong infusion of *eupatorium perfoliatum*, every ten or fifteen minutes, until it operates freely, taking care to aid its operation by giving the patient pretty liberally of the above mentioned infusion. This operation promotes in a most decided manner the general equilibrium of the circulation, improves the respiration, facilitates the expectoration, and subdues the pain and fever. The emetics should be repeated as often as

circumstances might seem to require, and carried to the extent of producing the effects above mentioned. The acetous tincture of *lobelia inflata* and *sanguinaria canadensis* will be found a valuable form of emetic in cases of this kind, more particularly in such cases as where expectoration is very difficult from the great tenacity of the mucus, and I should be inclined to think it is better than any other form for children.

After the emetic operation is fully over, the patient should have the feet soaked in hot ley water, and his legs, thighs and whole body most actively bathed with the same, by means of flannel cloths well moistened with the same and applied by making brisk frictions, and then subjected to the influence of rum sweat, for which, directions have already been given under the head of the treatment of pleurisy; which see. The patient should take liberally at the same time of some diaphoretic tea or infusion, which possesses also expectorant properties, and I have found the following preparation well adapted to the fulfillment of these indications, viz: take of the *asclepias tuberosa* two parts, *eupatorium perfoliatum* one part, and of *sanguinaria canadensis* one half a part, all properly bruised, and to two ounces of this compound, add one quart of boiling water, and allow it to steep or simmer a suitable length of time to take out the strength, then strain and sweeten, and give from one to three or four tablespoonsful of the preparation, usually as often as once in a half hour or hour. This will generally sweat the patient freely, and this effect should usually be kept up for several hours. We should not forget to apply, at a very early stage of the treatment, an extensive mustard plaster to the side and over the affected lung, and allow it to remain until it produces a reddened state of the skin, and after removing it, the common bitter herb fomentation comes in admirably, in conjunction with proper diaphoretic measures, such as the infusion above mentioned. This fomentation also acts favorably as a counter-irritant, and, as an auxiliary measure to produce perspiration, it should be applied as hot as can be borne, and renewed every fifteen or twenty minutes. A brisk and moderately active-cathartic becomes necessary in the treatment of this case whenever the bowels are confined. The common hydragogue purgative answers this purpose very well in

doses of from one to two teaspoonsful mixed in water. If this should not operate properly within two hours, the doses may be repeated until the desired effect takes place.

Another measure will be found singularly useful in the treatment of these cases, notwithstanding its great simplicity of character may render it with some an unpopular measure. I here refer to the inhalation of medicated vapor, and for this purpose a very convenient preparation is made by boiling equal parts of hops and hoarhound in equal parts of water and vinegar, and directing the patient to inhale the vapor thus produced freely every two or three hours. This almost always has the effect of rendering the respiration easier, and promoting the freedom of expectoration, divesting the mucus of that extraordinary tenacity which it has in most cases of this disease. In very severe cases of this complaint, where there are great pain and oppression, decidedly beneficial results follow from the repeated application of the scarificator and cups to the side, producing an evident reduction of the inflammatory excitement. Long continued nausea, with occasional vomiting, is a remedial measure, in the treatment of this case, of the very first importance, and in order to produce such effects in the very best manner, I know of nothing better than the acetous tincture, of *sanguinaria canadensis* and *lobelia inflata*, given in doses of from a half to two teaspoonsful once in a half hour, mixed in a little warm catnip or pennyroyal tea, so as to keep up a gentle state of nausea and relaxation for several hours, and when you desire to produce vomiting, the quantity of the medicine may be slightly increased. This usually has the effect of diminishing the frequency and reducing the hardness of the pulse, and also diminishing the febrile heat and producing general relaxation and perspiration. It is also well calculated to improve the respiration and promote the freedom of expectoration, very materially improving the condition of the patient in several respects.

Large onion poultices have been applied over the whole extent of the chest with decided advantage. The practitioner should not fail to resort to the frequent and industrious use of the ley bathing, which is invariably productive of much advantage. When there is dryness of the skin and increased temperature, a strong

decoction or infusion of the *ceanothus americana*, taken in doses of two or three tablepoonsful once in half an hour, is highly recommended as an expectorant, diaphoretic and diuretic, in this form of disease, more especially in the more advanced stages of it. I am not very well prepared to decide on the claims of this article to professional confidence, never having had much experience in its use in cases of this kind.

The foregoing plans of treatment, varied and modified according to the circumstances of each individual case, will be found very successful in combating the ravages of this malady.

XVI.

PNEUMONIA BILIOSA—BILIOUS PLEURISY.

This form of disease is of pretty frequent occurrence in the cold season, and in the miasmatic districts of the west and southwest, as well as in the south, and is a complication, usually, of the symptoms of remittent fever with those of pneumonia ; sometimes, however, the symptoms of hepatitis and pneumonia concur in the same case, giving us a modified form of the disease in question.

Symptoms. The attack may be, and generally is, ushered in with a distinct chill, which is followed by a paroxysm of fever terminating in a remission or intermission, in the same manner as the ordinary bilious remittent fever is ; assuming the quotidian, tertian, double tertian, or some other type, and may continue a day or two without developing the pneumonic symptoms ; but generally they commence within the period indicated. In other cases, instead of commencing in this manner, the pulmonary or pneumonic symptoms are first developed, such as pain, oppression, and tightness in the chest, with difficult, short, oppressed and hurried respiration, cough, bloody expectoration, and fever ; but after it continues a short time, then the symptoms of remitting fever may come on, or those of hepatic derangement, without the well marked evidences of the above mentioned form of fever ; in this case the skin and eyes will become tinged with an icterode hue, the tongue coated with a yellow fur, and there is a sense of fullness, pain and oppression in the right hypochondriac region, sometimes in the left, with a pain extending to the shoulder. The fever in this case does not seem to assume the remitting form, neither does there appear to be so much gastric derangement as when the case is marked especially by the remitting form of fever. Nausea and vomiting, with a yellowish brown

urine, are also symptoms of this. But by far the most frequent form which it assumes is that of the pneumonic symptoms, in connection with those of remitting fever. In addition to the symptoms indicative of inflammation of the lungs or pleura, or both, the patient experiences pain in the back and limbs, also in the right hypochondriac region, also a sense of oppression in the same region; yellowness of the skin and tunica conjunctiva, and sometimes mucus and bloody stools, a yellow or brownish coat on the tongue, bilious vomiting, the accompanying fever having a somewhat remitting form, although not so clearly of that character on account of the influence of the pneumonic inflammation in giving it a tendency to the continued form; the pulse is usually small, tense and quick, though in a few cases moderately hard, strong, and full. Cough, with bloody expectoration, are among the symptoms, in the event the substance of the lungs is involved in the inflammation. But if the pleura costalis is alone the seat of inflammation, then we will not find the bloody expectoration to accompany the attack, but instead thereof a tenacious, transparent and ropy mucus.

Diagnosis. There is perhaps no form of disease which is liable to be confounded with this, with the exception of bilious remitting fever, from which it is easily distinguished by the pneumonic symptoms, and the less clear and distinct features of the remissions and the exacerbations. Attacks of this disease are more especially apt to occur in miasmatic districts, after the prevalence of bilious intermitting and remitting fevers, during the later and colder periods of the fall, or winter and spring. The symptoms of the remitting fever are apt first to be introduced, and they are very often ushered in by a distinct chill, and the pectoral symptoms are not apt to come on until some two or three days have elapsed. However, in some instances symptoms of pneumonic inflammation occur simultaneously with the symptoms of remitting fever, and thus they go on in conjunction, one with the other.

Eclectic Reformed Practice. In this case as well as in most other attacks of thoracic inflammation, the advantages of emetics are such as to make them medicines of primary importance in the treatment. That is especially the case in the present form of disease, on account of the evidences of biliary derangement and

hepatic torpor, both of which are conspicuous features in the present form of disease. In most of these cases it will be found highly advantageous to commence the treatment several hours before giving a regular emetic, by the administration of four or five grain doses of the hepatic powder, mixed with a little of the warm tea of the *eupatorium perfoliatum*, as often as every twenty or thirty minutes, until the stomach becomes decidedly nauseated, and a favorable effect is produced on the liver. The preliminary treatment will favor in a most decided manner the action of the emetic, which should be composed of equal parts of the finely pulverized *lobelia inflata* leaves and seed, the root of the *sanguinaria canadensis* and *ipecac*. This compound powder should be administered in doses of from a half to a teaspoonful every ten or fifteen minutes, until it operates thoroughly some three or four times, producing the evidences on the organism of a strong emetic influence. A thorough purgative influence will be found highly useful, and for the fulfillment of this indication equal parts of the finely pulverized root of the *podophyllum peltatum*, and *leptandria virginica* may be given in doses of one teaspoonful mixed in a little warm, sweetened water, once in five hours, until it operates freely on the bowels, liver and stomach.

Not a little advantage would result from the application of an extensive mustard plaster over the region of the liver and thorax, allowing it to remain until a thorough redness was produced over the whole extent of the surface.

The practitioner, however, will not fail in this case to see the necessity of fulfilling the important indication of producing free perspiration by the use of nauseating, expectorant and diaphoretic medicines. A good formula for this purpose is found by taking equal parts of the *asclepias tuberosa*, *sanguinaria canadensis*, and *eupatorium perfoliatum*; to an ounce of this compound add one quart of boiling water, and allow it to steep or simmer some half hour or longer; strain and take warm as much as two or three tablespoonsful, as often as once every fifteen or twenty minutes, using at the same time the ley bath freely, by active frictions over the skin until sweating takes place, and this should be continued for several hours. This measure is very well adapted to restore the torpid hepatic functions, as well as to produce a gently

relaxed state of the bowels, promoting at the same time the freedom of expectoration and the ease of respiration. The repetition and change of these several measures, according to the attending circumstances of each individual case, will be as a general thing found adequate to the successful management of these attacks. In some few obstinate cases, it may be deemed advisable to apply the scarificator and cups, when there is great obstinacy in the attack, not only over the region of the lungs, but also over the hepatic region.

In cases characterised by a sense of great tightness and oppression in the chest, with difficulty of expectoration, the following cough drops will be found singularly efficacious.

| | | |
|---|------------------------|----------------------|
| R | Tinct. of Bloodroot, | } <i>āā</i> 3j. Mix. |
| | Syrup of Ipecac, | |
| | “ Squills, | |
| | Tinct. of Balsam Tolu, | |
| | Paregoric, | |
| | | Dose—one drachm. |

XVII.

PNEUMONIA TYPHOIDES : TYPHOID PNEUMONIA.

This pneumonic inflammation occurs in connection with the operation of influences calculated to produce what is commonly called a typhoid condition of the system, in which the nervous system, as well as the brain, seems to be prominently involved, having the effect of impairing the condition of the blood, not, indeed, unfrequently occurring in the course of an attack of typhus fever, but more frequently coming on with the characteristic feature of typhoid pneumonia from the beginning.

Symptoms. The symptoms indicating the pneumonic inflammation are very much such as are noticed in common cases ; such as pain, which may be either of the acute kind, or to some extent, obtuse ; but, in some instances, it appears to have the darting, shooting severity of neuralgic pain. When of this character, it may extend to parts not specially implicated in the inflammation ; there is also cough and dyspnoea, with the sense of oppression ; and a quite peculiar symptom in this case is the character of the matter expectorated, which is bloody from the commencement, and, in many instances, it consists almost entirely of pure blood, and does not possess, from the commencement, that tenacity which characterizes the matter expectorated in other forms of pneumonia. In quite a number of cases of this sort, there is scarcely any perceptible pain, sometimes the matter expectorated is brown, black, and somewhat foetid. The general complexion of the symptoms is that of depression, arising, most probably, from the state of the brain and nervous system ; the tongue is covered often with a dark or brownish fur, and sometimes black sordes collect on the gums and around the teeth, as in regular typhus ; pulse, although hard and of pretty good volume at first, soon becomes soft and quite compressible, and in the

more advanced periods of the disease, it becomes very weak, irregular and small.

There is usually some stupor of the sensorial functions, and, indeed, of all the functions of the system, to a greater or less extent; the flesh on the face is a deep and dark red, or rather purple red color; the skin is hot and dry in the earlier periods of the attack, but a more cold, clammy, and sticky state of the perspirable matter in the more advanced stages of the disease. There is also a state of obtuseness in the intellectual operations, which soon degenerates into a low sort of delirium. The surface is often covered with petechia. A dull sound is produced by percussion, and the respiratory murmur, commonly noticed in persons in a state of health is greatly changed. A sort of mucus or rattling sound takes the place of the regular and healthy sound. There is, perhaps, very little risk of ever confounding this case with any other malady; its distinctive characters are so strongly marked that any practitioner, failing to recognize it properly, would be justly chargeable with incompetency of qualification to perform the plain and unmistakable functions of his profession. So far I as have noticed this malady, it is very readily recognized, and it may be regarded as a disease much more liable to prevail during the cold and variable seasons of fall, winter and spring than during the summer.

Eclectic Reformed Treatment. There can be no doubt of the necessity of moderate evacuation in the treatment of this malady in the earlier periods of the attack, not only for the moderating of the existing febrile excitement, but for the purpose of promoting the freedom of the expectoration, and divesting the pneumonic symptoms of their severity. And the principal purpose of the practitioner should be to select such evacuants as would be well calculated to fulfill the required indications, without prostrating the vital energies. A commodious emetic for this purpose would be formed of *sanguinaria canadensis* and *lobelia inflata*, in connection with *eupatorium perfoliatum*, in the proportions of one part of each of the two former, to two parts of the latter, in the form of infusion or decoction.

One pint of boiling water should be added to one or two table-spoonsful of the foregoing compound, and it should be simmered for half an hour, or allowed to steep the requisite length of time,

strained, sweetened and given in doses of two or three table-spoonsful every ten or fifteen minutes, until free, copious and thorough vomiting shall take place three or four times, when its administration should be discontinued. This emetic, it will be very evident to all who are properly acquainted with its properties, is well calculated to produce its effects without much reduction of the vitality of the system. The expectorants and the diaphoretics should also have a sustaining quality in their composition. The diaphoretic preparation, composed of *sanguinaria canadensis*, *myrica cerifera*, sumach berries, and *hydrastis canadensis*, equal parts, all being well bruised or pulverized, and to two table-spoonsful, add three-fourths of a quart of boiling water, and allow it to steep or simmer a proper length of time, and give two or three table-spoonsful every ten minutes or not so often, quite warm, will be efficacious, as well as to make use of the ordinary means, such as bathing with the lye bath. Mild and unirritating cathartics may be used with much advantage, such as a combination of equal parts of neutralizing physic and *leptandria virginica*, both in a state of fine powder, in doses of one or two table-spoonsful to an adult subject, mixed in a little warm tea or water. In some instances, however, when a little more active, brisk and efficient cathartic is demanded, the anti-bilious cathartic would come in very properly.

The *apocynum cannabinum* and *asclepias tuberosa* come in very appropriately together, as expectorants, diuretics, and sustaining diaphoretics, well suited, from their peculiar properties, to the treatment of these cases, in the form of infusion or decoction. Ordinarily, it would be proper to give from one to three table-spoonsful once in one or two hours.

Decided advantage may be obtained in these cases by suitable counter-irritation, such as sinapisms, bitter herb fomentations, &c., as well as by the inhalation of the medicated vapor of peach leaves and hops.

The repetition and change of the foregoing measures, according to the peculiar features of each individual case, will, as a general rule, be sufficient to bring attacks of this disease to a safe and salutary termination, provided the practitioner be timely in attendance on the case.

XVIII.

ACUTE GASTRITIS: ACUTE INFLAMMATION OF THE STOMACH.

This disease usually affects the mucous membrane exclusively at first, and in bad cases it extends to the other membranes of the stomach. It may exist either in the acute or chronic form, and considering the very exposed condition of the stomach to the action of irritating influences, it affords matter for some surprise, that it is not more frequently the seat of inflammation than it is; but nature has supplied this great central organ bountifully with preservative powers, which tend to resist efficiently the action of irritating agents. When about to be assailed by any cause which has power to disturb its natural functions, it calls up to its aid all the powers of the system with a promptitude which is truly wonderful, and thus wards off mischief which otherwise might become the source of much subsequent evil to the human organism. Notwithstanding the great powers of resistance to the effects of the ordinary irritants calculated to produce inflammation, no organ in the human body so promptly feels the sufferings of other organs and tissues, as the stomach; for no sooner does any part of the system become the seat of irritation or inflammation, than the functions of the stomach are more or less affected, showing at once the great facility with which disturbing impressions reach the stomach, and the active play of sympathies existing between that organ and every other part of the body.

Symptoms. From the commencement of bad attacks of this disease, there is severe burning and lancinating pain in the stomach, which is much increased by pressure, or by a deep inspiration, or by swallowing hot or even warm drinks; nausea, and frequent vomiting, which is also increased by hot or warm drinks; thirst is very urgent for cold drinks, which afford temporary ease,

but are immediately rejected when they acquire the temperature of the stomach ; a costive state of the bowels, with more or less fever ; a constant sense of uneasiness and oppression about the stomach, with a small, hard and frequent pulse, and a rapid extinction of muscular power ; and often much difficulty of swallowing, from the existence of a spasmodic tendency of the cardiac orifice of the stomach. The substances thrown up from the stomach, are first, the contents of the stomach, chyme, mucus, and afterwards bile, &c. Sometimes the matters thus thrown off are mingled with more or less blood. The tongue is often covered with a whitish fur, with the exception of its tip and edges, which are red and fiery ; in fact, the papillæ on the whole surface of the tongue are considerably reddened. Sometimes the whole surface of the tongue exhibits a smooth, red and slippery appearance, without any mucus coating whatever. The patient is restless and unable to sleep, and lies on his back with his thighs drawn up towards the abdomen, his legs flexed on his thighs, and his head and shoulders somewhat elevated, to relax as much as possible the abdominal muscles ; countenance indicating anxiety and distress ; respiration somewhat hurried and short ; skin very dry and hot ; urine high colored and scanty, and often a dry sort of paroxysmal cough. In milder forms of this malady, the symptoms, of course, are all of lighter character. Instead of the severe nausea and distressing vomiting, there is only, perhaps, a very slight sense of sickness or disposition to vomit ; in the place of the severe pain, we often hear the patient complaining of a very slight sense of oppression. It not unfrequently happens that this affection exists without all or even a majority of the characteristic features, and it is even alleged by some very well informed practitioners, that none of the characteristic symptoms exist in many cases, which nevertheless are found, on dissection after death, to be proper cases of this complaint. When this affection occurs in connection with some other form of disease, it never fails to exert a considerable influence over the disease on which it depends as a symptom of incidental development.

The duration of this complaint is very uncertain, being nearly if not altogether dependent on the nature of the cause and the intensity of its action, as well as upon the state of the constitution

of the individual upon whom it operates, at the time he may be subjected to its influence. Some cases, which are the result of active poisoning, prove fatal in a very few hours; others, resulting from different causes, may progress very slowly, and terminate at last in the chronic form of the complaint, and be protracted for many years.

As to the post mortem appearances of those who have died of inflammation of the stomach, quite a diversity will be noticed even in those cases whose exterior evidences are very similar. Among those noticed in different cases, may be mentioned a contracted state of the stomach with its internal surface, exhibiting a wrinkled appearance, being covered over with a purulent viscid mucus, upon the removal of which, the stomach, on its internal surface, exhibits the usual marks of inflammation, of redness, and an injected state of its blood vessels, and, in some instances, well developed marks of ulceration. The color of the internal surface is either of a bright red, brownish or a livid red, the signs being remarkably various in different cases.

Diagnosis. It becomes a matter of the highest moment to distinguish this disease from several other forms of human maladies, to which it bears a very close analogy. It is distinguished from spasm, and the pains arising from flatulence, by the effects of pressure over the region of the stomach. When that organ is in a state of inflammation, this produces a decided increase of the pain and suffering; whereas, in spasm and flatulent pain, it relieves the patient. The skin is hot and dry, in cases of gastritis; nearly natural in spasm and flatulent pain. In gastritis there is fever, and pulse very much accelerated; in spasm and flatulent pain, no fever and very little or no disturbance of the pulse. In gastritis, the patient lies on his back, with his knees drawn up towards the abdomen, and seems to be very careful in all his motions; while in spasm he writhes and twists, and changes his position very frequently. In gastritis there is violent vomiting, while in spasms and flatulent pain there is none. As a general rule, warm drinks excite vomiting in gastritis, but do not in spasms. Gastritis is continuous, and spasms and flatulent pains are paroxysmal.

Gastritis is distinguished from hepatitis by the difference in the

degrees of muscular prostration, which is very much greater, as the pulse is smaller, in gastritis than in hepatitis. Warm drinks excite vomiting at once in gastritis, but do not in hepatitis. The tip, margin and papillæ of the tongue, generally are red, and exhibit a fiery appearance in cases of gastritis; but in cases of hepatitis, the tongue is covered with a yellow or brownish fur, and destitute of the fiery redness of the tip and margin, so conspicuous in gastritis. The pain arising from hepatitis extends with much severity to the shoulder, but does not in gastritis. The pulse, in gastritis, is small and tense, but in hepatitis it is full, hard and strong.

This affection may be distinguished from pleuritis by the character of the pain in gastritis being burning, and in pleuritis being lancinating and severe, and the condition of the pulse being in cases of gastritis small and tense, but in pleuritis hard and full. In gastritis the muscular power is much prostrated, in pleuritis not so much. A deep inspiration increases the pain in pleuritis more than it does in gastritis.

Causes. This difficulty is very often the result of overdistension of the stomach, by too strong and stimulating articles of diet and drink, especially after that organ has become much debilitated and deranged from the repeated effects of these agencies. Perhaps the most frequent causes that are concerned in producing these cases, are the corrosive, acrid, mineral and vegetable poisons. The former, however, are much more frequently productive of these diseases than the latter, in consequence of their greater tendency to produce corrosion or destruction of the tissues, on which they operate locally. Predisposition to attacks of this kind is often produced by a drastic irritating course of medication, without, at the same time, the production of appropriate influences to insure the proper equilibrium in the circulation and the excitability of the system. Large draughts of cold water when the individual is much heated, relaxed, and in a state of perspiration, are very apt to produce this disease. It may also be the result of the translation of gout and rheumatism from the extremities, which may take place very suddenly and be very severe. Sometimes, though rarely, it results from cold, not being nearly so apt to be produced by causes of this kind as most

other inflammatory attacks, owing, most likely, to the large amount of resisting power with which this great central organ is endowed. It not unfrequently results from the influence of the attacks of certain forms of fever, such as remittent and yellow fevers.

Eclectic Reformed Practice. There are few cases encountered by medical practitioners which are so apt to be sources of perplexity to them as those under consideration, so far as they relate to the choice of remedial measures, with the course of medication which is most appropriate to them during their various stages of progression. It is, indeed, a more difficult matter to commence properly in one of these cases than in almost any other inflammatory form of disease. If the attack be well confirmed, it will be attended by much risk to administer any agent whatever, which is calculated to produce a strong local impression on the stomach, on account of the tendency of all such strong impressions to aggravate the existing inflammation, and to fail in the production of their ulterior salutary influences. The choice of proper influences, therefore, becomes a matter of much difficulty, and is apt to place the practitioner in a somewhat perplexing and awkward position.

However, the choice of a proper course of medication will very much depend on the particular circumstances connected with each individual case. The cause that may have produced the attack, and the special attendant consequences, will of course have their proper influence on the decisions of the practitioner. If the patient has swallowed some violent corrosive poison which has speedily produced its effects in enkindling inflammation, in most cases, the better policy would be to take a proper antidote immediately, and resort to the use of an emetic, such as a strong infusion of eupatorium perfoliatum, in which is dissolved, or rather mixed, one-half a teaspoonful of pulverized lobelia and ipecac, and repeat it in a few minutes if the first does not operate freely, and throw off the contents of the stomach. This treatment becomes especially necessary in such cases, for the purpose of throwing off the poison as speedily as possible; the subsequent management in such cases being similar to those produced by other causes.

If called to a case of inflammation of the stomach in its very early stage, before the well defined features of the malady in its active form shall have been developed, I have not, under such circumstances, hesitated to administer a very mild form of emetic, such as by preparing a strong infusion of *eupatorium perfoliatum* and chamomile flowers, in the proportions of equal parts of these two agents, giving from two to three tablespoonsful at a dose, and repeating it once in ten minutes, until it operates two or three times in a mild and moderate way. In the meantime, suitable external treatment should be had recourse to forthwith, such as soaking the feet in hot ley water, and bathing the whole body by means of brisk frictions with the same, applied by flannel cloths or by pieces of sponge duly moistened; a very extensive mustard plaster should be applied on the stomach, and kept on till it completely reddens the skin, when it should be removed. Prior to the application of this plaster, the patient, in severe cases, should be subjected to the influence of the rum sweat, and kept under its effects till complete and thorough sweating is the result.

The fulfillment of this indication, in a proper manner, is highly advantageous to the patient, and should be encouraged by such auxiliary means as may be within the reach of the practitioner, and not incompatible with the safety of the patient; such as the application of the common bitter herb fomentation over the region of the stomach, renewing it very frequently and applying it as hot as it can be borne. This not only acts as a powerful counter-irritant, but also as a valuable means to promote the freedom of perspiration, especially in all those cases in which the stomach is not in a condition to receive such warm stimulating and diluent drinks as are calculated to act efficiently as diaphoretics. Make a strong infusion of peach leaves, by adding to an ounce and a half of the bruised leaves, one quart of boiling water, and allowing it to steep a half hour; strain and sweeten, and give it tepid, but not hot, in doses of two or three tablespoonsful every fifteen or twenty minutes, until it quiets the irritability and subdues the inflammation of the stomach. It not unfrequently happens that several of the first doses of this medicine are thrown up; but the practitioner should persevere in its use notwithstanding.

ding, for it soon succeeds in producing the desired quietude of the irritated stomach, and is retained generally with much facility. This remedy has often been used as the only one in these cases, with the most complete and satisfactory success. The kind of drinks most suitable in this disease, are of the highest possible moment to the success of the treatment. The best are the soothing mucilaginous kind, such as a strong infusion of the root of the *althea officinalis*, taken nearly cold, and in moderate quantities, but pretty frequently. The mucilages of gum arabic and of *ulmus fulva* likewise make very good drinks, in cases of this disease. One of the most pleasant and grateful agents which the suffering patient can take with propriety, are small pieces of ice being slowly dissolved in the mouth, and allowed to pass, in a very gradual manner, into the stomach. This produces a pleasant, cooling effect on the inflamed surface of that organ, and, in most cases, seems to exert a very beneficial effect.

We should not, in the treatment of cases of this disease, lose sight of the necessity of evacuating the bowels, and for this purpose injections can be made more available in the treatment than any other means in the earlier stages, until the active inflammatory symptoms shall be subdued so that the stomach shall not be so irritable as at first.

In those cases of this complaint which are marked with such evidences as induce us to believe that there is quite an accumulation of acids on the stomach, the neutralizing extract becomes an highly useful medicine, and should, by no means, be omitted in the treatment of cases of this description. It may be given in doses of from a half to a tablespoonful every hour or two, until this acid condition of the stomach is corrected, or until it shall produce moderately free operations on the bowels. The hydragogue purgative may be resorted to for the same purpose; a teaspoonful dose may be given once in two hours, until it operates briskly, which it usually does in a short time, sometimes even without repeating the dose.

When, however, an injection is decided on, a strong infusion or rather decoction of the *eupatorium perfoliatum*, one pint, in which is dissolved two tablespoonsful of table salt, well sweetened with sugar or molasses, thrown in by means of a large

syringe, will generally operate quite actively, and after the manner of a brisk and active cathartic, emptying thoroughly the bowels, and producing very much the same effects as would result from an active and brisk cathartic.

In the treatment of several of the severest attacks I have ever witnessed of this disease, I found the most prompt and decided relief to result from the use of spirits of turpentine, applied over the whole surface of the abdomen and the lower parts of the thorax, and immediately after smearing the surface in this manner, applying a large mustard plaster, before the turpentine had evaporated, over the whole extent of surface moistened with the turpentine. This, I am aware, will look like a harsh measure of treatment to many, but is, in many cases threatening to terminate fatally in a short time, entirely justifiable, notwithstanding it may and does inflict quite a severe degree of pain on the suffering patient; but in all cases in which so important an object as the life or death of the patient is depending, we should not hesitate to call to our aid every means which may promise fairly to give us material assistance in deciding the fearful contest in favor of the perpetuation of the life of a fellow being.

XIX.

CHRONIC GASTRITIS : CHRONIC INFLAMMATION OF THE STOMACH.

In the examination of the subject now before us, no feature of the case so forcibly impresses itself on our mind as the fact, that there is no well defined, distinct line of demarkation pointing us to the characteristics which constitute the acute and chronic stages of gastritis. To point out accurately the stage at which the one ends and the other begins, will always remain a problem in pathology of difficult solution, and perhaps from the very nature of the subject is not susceptible of any considerable degree of accuracy, especially in those cases of the *chronic* form of this disease which have grown out directly of the *acute*.

Symptoms. When chronic gastritis takes place without being preceded by the acute, it usually comes on in a very gradual manner, without the development of any effects which are likely to arrest the earnest attention of either the physician or patient. The patient at first, however, feels some slight uneasiness about the stomach after eating, with a sense of oppression and general discomfort during digestion, with more than the ordinary fever and excitement from the act of digestion, and some vague and indistinct sensations of uneasiness extending from the stomach to other parts. The degree and extent of the foregoing sensations are exceedingly variable in the different cases. These symptoms, however, grow in intensity, and the patient has a burning, pricking and lancinating pain in the epigastric and hypochondriac regions ; sometimes this pain is confined to a very small and circumscribed spot ; there is also a sense of tightness and a feeling of constriction over the region of the stomach. The patient feels as if a heavy weight was pressing on this part, and in some

instances as if a bar was laid across him, and weighing him down to a very great extent. Nausea and occasional vomiting take place, especially after eating; great uncertainty and depravity of appetite; costive state of the bowels, especially during the earlier stages of the disease. But if the irritation extends much to the mucous membrane of the bowels, which it occasionally does in the more advanced periods of the disease, looseness of the bowels takes place; the patient feels quite irritable, dejected and discontented, and in bad cases there is much emaciation; the skin seems to have lost its usual mobility as it regards its power to move on the subjacent parts; it seems to adhere to the muscles and other parts beneath it with great firmness. In addition to the foregoing symptoms, there is often heartburn, headache, eructation of gas from the stomach, soreness on pressure, thirst, a swelled or full state of the stomach, a sensation of hollowness or of fullness of the stomach, sour and acrid eructations of fluid, and a red tip and margin of the tongue, and an unpleasant taste in the mouth. The matter thrown up from the stomach is very various in appearance, consistence and quality, sometimes tinged with blood and matter when ulceration has already taken place. The substances thrown up exhibit a great variety in their appearances, as well as in their sensible qualities. The tongue exhibits quite a variety of appearances. In most cases, however, it is covered over with a thin, whitish or brownish fur, with a somewhat reddened state of the papillæ on its surface, more particularly on its tip and margin. In some cases, however, the papillæ are pale, swollen and flabby, with an aspect of paleness over the whole extent of the mucous surface of the mouth. In the more advanced stages, not only the surface of the tongue, but the most of the buccal cavity is seen covered over with a kind of apthous exudation, which, in connection with the pale and flabby state of the papillæ already spoken of, affords pretty conclusive evidence of the existence of a state of ulceration in the stomach. The pulse and degree of fever in these cases are exceedingly various; sometimes there is scarcely any fever, and at other times quite an exacerbation comes on every afternoon and evening, the pulse being nearly natural in some cases, and quite small, quick and accelerated in others.

The morbid appearances in this disease are quite variant in different cases. In most persons who have died of this disease, the mucous membrane exhibits a thickened appearance, with occasionally ulcers on its surface, its color in some instances being dark, in others rather whitish or gray, and in others again of a darkish red appearance.

Causes. This form of gastritis often results as a consequence of acute attacks. But it much more frequently comes on as an independent affection, following a long continued series of irritations of the stomach. The use of spirituous liquors is a frequent cause, also strong and stimulating articles of food; over distension of the stomach; drinking too abundantly of hot strong tea and coffee not unfrequently lays the foundation for attacks of this complaint. A long continued course of very hot stimulating medicines, strong drastic and irritating doses of emetic and cathartic medicines, or indeed, any of the other classes of medicine may produce this case if continued too long or even in excess, especially according to the system of orthodox medication usually recommended in the leading authorities of the day, which are known to sanction too much of an ultra course of drugging the stomach and bowels, to the great neglect of the surface, notwithstanding the acknowledged importance of that very sensitive tissue, the skin, which is not only capable of receiving remedial impressions calculated to influence the condition of the organs to an astonishing extent, but of exerting almost an unlimited control over the internal secretory surfaces, by its various conditions of healthy and unhealthy action.

Diagnosis. This disease may be confounded with simple gastric debility, but can be easily distinguished from it by the effects of an emetic. If the case is chronic inflammation, the operation of the emetic will very much increase the sufferings of the patient; the degree of distress, the anorexia and febrile excitement will all be very materially increased. But all these symptoms will be relieved by that operation, provided the case is one of simple gastric debility. Chronic gastritis may in like manner be mistaken for gastralgia, a neuralgic affection of the nerves of the stomach.

The pain in gastralgia is paroxysmal and intermittent, but in gastritis it is continuous; it is also more violent in the former than in the latter affection, and is relieved by firm pressure instead of being increased as it is in gastritis; appetite always bad in gastritis, sometimes better than usual in gastralgia; tongue is red and the breath is offensive in gastritis, but in gastralgia it usually has its natural color, or is slightly covered with a white fur, without any offensive character to the breath. In gastralgia the saliva is very abundant, no thirst, but often a repugnance to liquids. In all these particulars, it differs from the symptoms observed in gastritis. In gastritis digestion excites fever, and the food is rejected a little time after eating, but in gastralgia the pain is relieved by eating, and digestion is complete and sometimes even too good. In some cases, however, the pain is increased a considerable time after eating. Such are some of the principal points of difference between these two cases.

Eclectic Reformed Practice. In the treatment of chronic inflammation of the stomach several important indications should be fulfilled, and so far as it relates to the appropriate measures to be relied on for the fulfillment of the indications in question, much will depend on the stage of the disease, constitution and temperament of the patient, and a variety of circumstances, which may connect themselves with the case.

It becomes a matter of primary importance in most cases of this disease to act on the stomach in such a way as to evacuate its contents by a remarkably mild emetic operation, which is perhaps better accomplished by the use of a strong decoction of eupatorium perfoliatum and chamomile flowers, an ounce each, to one quart of boiling water; allow these ingredients to simmer slowly one half hour, then strain and sweeten, and take from one tablespoonful to three tablespoonsful every half hour, until the patient vomits four or five times, and it may be found very useful to repeat this emetic at intervals of four or five days or a week, for several times. The indication which is incomparably the most important in the treatment of the disease, is to restore the lost action and functions of the skin, and to produce, as a matter of consequence, an equilibrium in the excitability and circulation. Whatever else may be attempted or done, this stands out in prom-

inent conspicuity as the greatly desired end to be accomplished by the agency of the practitioner. For the purpose of fulfilling this indication, my own experience, as well as that of many others, has led me to place a very high estimate on the efficacy of the ley bath, followed immediately on each occasion of its use by a strong decoction of the bark of the quercus alba, applied in the same manner as a bath by means of very brisk and active frictions, at least as often as twice in twenty-four hours, making use for the purpose of its application, of a sponge or flannel cloth ; immediately on the conclusion of these bathing operations, permit the patient to remain in bed and apply something warm to his feet, as a hot brick or iron. In a short time the patient has some reaction, and the surface of the body is covered with a gentle perspiration, which often continues for an hour or more. This is a most desirable and admirable result, producing, as it does, a highly favorable change on the organism in general, and the secretory surfaces in particular, in the restoration of the strength and health of the patient, when used in conjunction with a few additional auxiliary measures in the treatment of this malady. In most cases of this affection, occasional operations on the bowels become necessary, with mild, unirritating and sustaining purgatives, such as the anti-dyspeptic pills, in doses of two or three at a time, or the pills made of the juglans cinerea ; the neutralizing physic makes a very appropriate medicine whenever acid abounds in the stomach or bowels, given in the usual quantities, until it operates two or three times moderately ; given in the form of the powder, it often exerts a more beneficial effect than when given in the liquid form.

The common restorative bitters, in doses of from one to two tablespoonsful, morning, noon and night, will be found to exert a most beneficial effect in many cases of this complaint, where there is not too great a degree of irritability of the stomach, or too much febrile excitement. As a general rule these bitters will be borne by the patient very well, and they have the effect of improving the tone of the digestive organs generally, as well as increasing the urinary secretion, and imparting strength to the system in general. In those cases accompanied by hepatic torpor, two

or three grains of the hepatic powder, two or three times a day, in conjunction with the restorative bitters, will be found highly useful, and well worthy of adoption in the treatment of this disease.

The alterative syrup, in many cases of this complaint, proves highly useful, if given in doses of from a half to a wine glass full morning, noon and night, especially in those cases in which the scrofulous diathesis obtains, marked, to a greater or less extent, by lymphatic glandular obstructions.

In cases of a moderately mild and manageable character, in which no ulceration has taken place on the mucous membrane of the stomach, the adhesive and strengthening plaster will be found an invaluable measure, applied over the whole extent of the epigastric and hypochondriac regions, and worn for several weeks, renewing it, however, occasionally. But in all such cases as are very obstinate and unyielding, and especially where we have good reason to understand that ulceration has already taken place, we should by all means avail ourselves of the advantages that would probably result from the use of the irritating plaster, over the region of the stomach, and kept discharging for several weeks in succession. The beneficial effects which this application is capable of conferring on the patient is not alone attributable to its counter-irritating effects, but much more to the powerfully alterative influence which results from the absorption of the active medicinal principles with which its various active ingredients are liberally charged.

XX.

ENTERITIS: INFLAMMATION OF THE INTESTINES.

In the most extended signification of the term enteritis, it is intended to comprehend any and every inflammation of any portion of the intestinal track, from the commencement of the duodenum to the termination of the rectum, affecting any of the coats of said intestinal track. This definition as a matter of course would include dysentery as well as enteritis proper; however, in the present work the term will be restricted in its signification to that inflammation which more particularly affects the small intestines, sometimes extending to the colon, and at other times commencing in some part of the colon and extending to the small intestines, involving in some cases the mucous membrane only; but in most instances the mucous, muscular and peritoneal coats; and again in other cases the peritoneal and muscular coats are principally the seat of the inflammation, and the mucous membrane but slightly affected. There will of course be some variety in the character of the symptoms presented in these various modifications of the disease, dependent on the special seat and extent of the inflammation in each individual case.

Symptoms. This disease usually manifests itself by some slight uneasiness, which gradually grows into a fixed and burning pain in the abdomen, usually about the central or umbilical region; when the mucous membrane is but little affected, obstinate constipation, pain and soreness are much increased on pressure; nausea and occasional vomiting, sometimes so severe as to produce inverted action of a large portion of the intestinal track, extending even beyond the valve of the colon, so as to throw up fœcal or stercoraceous matter. The pulse is usually small, tense and frequent, and in some instances is full and hard. There is

fever, with a hot, dry and constricted state of the skin, with a dry and red tongue; thirst is quite urgent; the urine being small in quantity and high colored; breathing somewhat short, being performed mainly by the intercostal muscles. The patient selects the position on the back, with the shoulders somewhat elevated, the thighs drawn up towards the abdomen, and the legs towards the thighs. The patient instinctively takes this position, to avoid the pressure which the muscles might otherwise exert on the abdominal contents. The patient not only takes this position, but carefully avoids motion as much as possible. If the superior portion of the arch of the colon should be affected, the symptoms will bear quite a close analogy to those of pleuritis, or acute hepatitis. In all those cases in which the mucous membrane is prominently the seat of the inflammation, instead of constipation being a constantly attendant symptom, diarrhoea will take the place of that feature of the case, the bowels becoming quite inconveniently loose.

Diagnosis. Enteritis may be confounded with several other forms of disease, if the practitioner be not sufficiently careful in his diagnosis; and among these may be mentioned pleuritis, from which it may be distinguished by the following features: the pulse in pleurisy is full and hard, in enteritis it is small and tense. The pain in pleurisy is sharp and lancinating, and the respiration is performed mainly by the abdominal muscles; the pain in enteritis is of a burning and lancinating character; abdomen tender to pressure in enteritis, not so in pleuritis.

Enteritis may be distinguished from spasmodic pain by the thirst, heat and dryness of the skin, continuous character of the pain, the position of the patient on the back, avoiding motion, fever, and by pressure increasing the pain in the former; and the very reverse of all these being present in spasmodic and flatulent pain, viz: in spasmodic pain there is no thirst, the skin has its natural temperature and moisture; the pain being paroxysmal and intermittent, the patient is relieved by pressure on the parts affected, and is disposed to writhe about in almost every direction, during the active continuance of pain.

Enteritis may be distinguished from hepatitis, by the pulse in hepatitis being full, hard and strong, and in enteritis small and

tense; the pain in hepatitis extends to the clavicle and shoulder, and there is fullness and pain in the right hypochondrium, also sometimes in the epigastrium and left hypochondrium; the pain in enteritis is of a burning kind, does not extend to the shoulder and clavicle, and is more particularly felt in the umbilical and hypogastric regions; the tongue in cases of enteritis is red, and in cases of hepatitis is covered with a brownish or yellowish fur, with icterode tinge of the skin and whites of the eyes, whereas they are both absent in enteritis generally.

So far as relates to the morbid changes in the structure of the part implicated in the disease, they are very similar to those already described in acute gastritis.

Causes. Inflammation of the bowels may be the result of the operation of a vast variety of causes. Among these one may be mentioned which is quite frequent in its operation, namely: cold applied especially when the surface of the body is in a relaxed and moist condition, producing a check of perspiration, which may soon be followed by inflammation of the bowels. Poisonous drastic purges may often give rise to this condition when they are given in large quantities and operate with especial violence. The recession of eruptive diseases may in like manner be a cause of this complaint; the translation of gout and rheumatism occasionally give rise to the malady. Indigestible substances passing the stomach and lodging in the bowels, first giving rise to irritation which may be and frequently is followed by inflammation; acids, depraved and acrid secretions, acting on the mucous surfaces, may produce it. Worms sometimes may produce this inflammation, especially when they are knotted and entangled together in a mass sufficiently large to obstruct the bowels, and cause inflammation to take place at the point thus obstructed.

Prognosis. The termination of this inflammation most desirable is by resolution; its gangrenous termination is almost invariably fatal; its termination by suppuration is by no means a frequent occurrence. A cold and clammy state of perspiration, a small and almost imperceptible state of the pulse, a tympanitic swelling of the abdomen, and diffused state of the pain, are pretty sure indications of danger in this case.

Eclectic Reformed Treatment. In the remedial management

of this form of inflammatory disease, much diversity of opinion has existed among medical authorities as to the propriety or impropriety of the use of certain remedies and modes of management; while one class of practitioners has placed the seal of unqualified condemnation on the use of active purgatives, another has found them among the useful and important agencies of successful treatment. This subject thus at issue between the two contending parties has often elicited much warmth of controversy, and not a little ingenuity and ability have been expended in the investigation by the respective adherents of these two conflicting opinions.

It seems to the author that much more has been said on this subject than has anything like a proper relevancy to the principal points at issue, and further, that the subject, when duly considered, in relation to all its facts, is not a debatable question at all. No fact in medicine is better established than the fact that every medicine has an effect on the human organism peculiar to itself, and unlike all others. This fact is equally true of the class of purgative medicines as of all other classes. Hence, one form of purgative, by the peculiar effects it is capable of producing, may be liable to produce bad consequences, while another, equally active, or even more so, may fail to exert any injurious tendency whatever. The difference of opinion in relation to this matter seems to have arisen in the minds of those who have participated in the discussion of the question, from having, in a good degree, failed to recognize properly this leading and essential fact. But waving any remarks on this subject, the treatment, in my opinion, should generally be commenced by the administration of an active and very thorough cathartic, especially if the mucous membrane be not very prominently the seat of inflammation. In that event there might, and undoubtedly would be just grounds for some hesitation before proceeding to give very active purgative medicine. But the case we are now treating of, presupposes that the peritoneal and muscular coats of the bowels are the principal seat of the inflammation, and costiveness is an attendant symptom. The podophyllin, perhaps, offers one of the best purgatives for the fulfillment of this indication, by first giving, to an adult, two grains, and repeating with one or one and a half

grains, in four or five hours, if the first does not seem likely to operate freely and fully. This medicine has seldom disappointed me in the production of the most favorable effects, even when it operated a number of times very thoroughly, both as an emetic and purgative. For the same purpose, I have often used thirty grains of anti-bilious physic, and about the same quantity of the pulverized root of the *podophyllum peltatum*; the operation of this dose has been very powerful, and, at the same time, very effectual in arresting the progress of the inflammation, and so far modifying the subsequent course of the case as to bring it to a speedy and safe termination.

So soon as it is satisfactorily ascertained that inflammation of the bowels exists, the patient should have applied, over the whole extent of the abdomen, a large mustard plaster, and it should be allowed to remain until the skin becomes perfectly reddened; it never fails to exert a strong auxiliary influence in arresting the inflammation; this measure might be carried into effect, even before a cathartic is administered, or at least before its operation shall have taken place.

As soon after the cathartic has operated, as the circumstances of the case will permit, the patient should be submitted to the influence of ley bathing, taking care to soak the feet for half an hour in the same, as hot as can be conveniently borne, and submitting him to the action of the rum sweat, giving, at the same time, warm diluent diaphoretic drinks, such as an infusion of catnip or peppermint. Let this be taken liberally, and the patient be continued in a perspiration for several hours; at the same time, while these measures are being carried into effect, much benefit may be derived from the application of bitter herb fomentations to the bowels, as hot as can be borne, and renewed every five or ten minutes. This measure aids most essentially in keeping up the desired perspiration, as well as operating as a most valuable counter-irritating agent.

In those cases in which the patient manifests great restlessness, the diaphoretic powders, administered in three or four grain doses, every twenty or thirty minutes, in conjunction with some other sweating measures, such as a strong infusion of balm or of *eupatorium aromaticum*, will be found highly valuable, and well cacula-

ted to promote the benefits of remedial management, in the treatment of severe and obstinate cases. In addition to the occasional use of mustard plasters and bitter herb fomentations, a large poultice, made by cutting the root of the *althea officinalis* in transverse slices, bruising it well in an iron mortar, simmering it well in sweet milk, and adding a sufficiency of corn meal to bring it to the proper consistency of a poultice, may be spread, applied on the affected parts, and renewed occasionally. Onion poultices applied in the same manner, often manifest very favorable effects in the treatment of this malady. Mucilaginous and diuretic drinks will be found very useful in the management of this complaint, such as the infusion of the *althea officinalis* and *ulmus fulva*. The application of a poultice of *anthemis cotula* and soft soap, will be found a measure well worthy of adoption. In very obstinate attacks of this malady, scarifying and cupping the abdomen will be found to exert a beneficial influence, and if the case seems likely to assume a chronic form, then the irritating plaster should be immediately applied, and kept discharging so long as any evidences of inflammation remain.

XXI.

CHRONIC ENTERITIS OR CHRONIC INFLAMMATION OF THE BOWELS. CHRONIC DYSENTERY.

This disease exists more frequently than we are in the habit of suspecting. Many cases usually regarded as marasmus, dyspepsia and chronic diarrhoea, are, in reality, nothing more nor less than this disease. In most instances it is characterized by a loose state of the bowels as one of its prominent features. In a very few instances, however, the opposite condition obtains, with a very hardened condition of the abdominal walls. It must be confessed, however, that much obscurity exists in the character of the symptoms and disturbances of the system, which are consequent on its occurrence, so much so, indeed, as to make it a matter of much difficulty to detect the true nature of the case.

Symptoms. In most cases of this complaint, there is no very distinct abdominal pain, but occasionally considerable pain is felt, when indigestible substances are passing along the bowels especially; pain and soreness are made evident by the application of pretty firm pressure; the pain and soreness are felt usually by the agitation of coughing; there are also much muscular debility and emaciation as the disease advances, with cold hands and feet. Sometimes, however, there is burning in the palms of the hands and soles of the feet, and usually slight paroxysms of fever in the evening, with increased frequency of respiration and some slight cough; the pulse usually becoming small and weak; sometimes pain and nausea after eating, and perhaps in a few instances vomiting also. The skin in nearly all cases dry, husky and sallow. The tongue is usually smooth and red on its edges, and not unfrequently presents the same appearance over the whole extent of its surface, except the middle, which often appears brown; the sleep

is interrupted more or less, the patient being uneasy and restless ; the bowels are generally loose ; sometimes, however, they are costive. When loose, there is often painful diarrhœa ; the appetite is quite variable, sometimes rather morbid, and at others scarcely any ; the food often passes undigested, and the discharges from the bowels vary much in appearance, both in reference to color, consistence and quantity ; in some instances being quite small in quantity and slimy, in others copious, dark and liquid. There is usually much irritability of temper, and an aspect of dullness depicted in the countenance. This disease may continue but for a short time in some cases, but in others it may last for many months, or even for several years, before either a favorable or fatal termination takes place.

Causes. These may be various. It sometimes follows as a consequence of the acute form of the disease, but it is much more frequently the result of the operation of causes which act directly, but in a gradual manner on the mucous membrane of the bowels, such as irritating articles of diet of an indigestible character, acids and other irritants acting on these parts. Drastic and frequently repeated purgation, especially with the strong, poisonous mineral medicines which are now so much in use ; cold and moisture, when long continued, in low, damp situations, are very apt to produce it.

Post Mortem Appearances. The appearances on dissection are very various ; in most instances, however, there are points of ulceration of various sizes and shapes, and in some cases surrounded with a kind of fungous elevations. In many of these cases large portions of the internal surface of the mucous membrane of the colon exhibit an extremely ragged and uneven appearance, and even on those parts which do not undergo disorganization, the surface of the mucous membrane shows a quite irregular and corrugated appearance, and seems to be considerably thickened,

Eclectic Reformed Practice. So far as the proper treatment is concerned in cases of this kind, much diversity of opinion exists in the minds of eclectic practitioners as well as physicians generally. Ordinarily, a mild evacuant course will be found best adapted to the circumstances usually attendant on cases of this description. A gentle restorative and sustaining purgative will

answer a valuable purpose at first, such as a combination of the finely pulverized root of the *leptandria virginica* and neutralizing physic, in the proportions of equal parts, say about fifteen grains of each. This will usually operate with decided energy as a purgative, and leave the system but very little debilitated. A most vigorous and efficient course of measures should be taken to restore the functions of the skin, such as the industrious application of the ley bath, at least as often as twice a day, and the use of the rum sweat at least as often as once a day, or oftener if thought necessary; the ley bathing should be accompanied with brisk and active frictions; in many cases it will be found advantageous to follow each application of the ley bath by a strong decoction of the bark of the *quercus alba*, which should also be applied by means of brisk frictions, using a flannel cloth or a piece of sponge for this purpose. As soon as this bathing process is concluded, the patient should be covered warm in bed, with a hot brick to the feet, and allowed to remain undisturbed for two hours or longer, during which he perspires freely, as a general thing, which may be looked on as a very desirable result, tending directly to a salutary end.

When the circumstances of the case are such as to indicate the existence of hepatic torpor, with a sallow complexion, a dark or brownish fur on the tongue, with occasional nausea, and a sense of oppression about the stomach, the occasional operation of a mild emetic will be found highly useful in the treatment, not only for the purpose of increasing the determination of blood to the surface, and removing the existing inactivity of the superficial capillaries of the system, but restoring the natural action to all the torpid internal secretory surfaces.

Another measure which I regard as of essential importance as an antiseptic restorative and astringent measure, is the *betula lenta* or black birch bark, to be administered to the patient in the form of strong decoction, made by adding one ounce of the bark to one pint of water, and to have it submitted to the action of boiling water for half an hour or until the strength is pretty well extracted. Of this about two tablespoonsful taken once in two hours will generally exert a very favorable influence, diminishing the relaxation of the bowels, strengthening the mucous membrane,

and imparting a tone and vigor to the general system which produces a well marked improvement in the nature of the case. I must not omit to mention that in all those cases which are marked with the evidences of acidity in the stomach and bowels, as many are, the remedy which ordinarily proves most successful is the neutralizing extract given in doses of three or four teaspoonsful once in two or three hours; to be continued as long as the evidences of acidity remain. Very often this medicine affords the desired relief in a very short time. Some of the most triumphant results I have ever witnessed in cases of this kind have been effected by local, external applications, calculated not only to produce counter-irritation, but likewise to impart such principles to the system as would invigorate it, and secure in the end highly beneficial alterative influences. No application which I have ever seen used, seems to exert so beneficial an influence as the irritating plaster, applied largely over the surface of the abdomen, and renewed after the usual method, and kept discharging for several weeks freely. In this as in many other cases, this invaluable measure does not so fully manifest its benefits during the continuance of its active effects on the parts on which it is applied, but they seem to come on in a more decided manner after the discontinuance of the plaster. I have known its operation in several instances to be followed by quite a crop of pretty large abscesses, having the appearance of common boils, and after these have disappeared, all the evidences of chronic inflammation have subsided.

XXII.

ACUTE BRONCHITIS, PERIPNEUMONIA NOTHA; OR, ACUTE INFLAMMATION OF THE BRONCHIA.

When considered in its widest sense, this disease is one of remarkably frequent occurrence. Like many other maladies, it exists in very various degrees of violence; from the mildest catarrhal affection, up to the severest and most threatening inflammatory disease. It consequently becomes a disease of the very first importance to the practitioner, and should command at his hand a proportionate amount of attention, not only in reference to its nature and tendency, but also in regard to the best and most successful modes of medication.

Symptoms. In its mildest form it exists as a common cold, or as it is sometimes expressed, a cold in the breast, with a little hoarseness, slight cough, a sense of heat or soreness in the chest. The cough at first is usually dry, but afterwards the expectoration becomes quite free, and the sense of soreness passes off without much additional trouble. But in the common variety which usually occurs, it commences, as above mentioned, with sensations of lassitude, uneasiness and constriction in the upper part of the chest, with aching of the limbs and chilliness, which is soon followed by fever. There are also felt a sensation of diffused heat, tightness, stricture, weight or soreness through the chest, especially the upper part of the chest, and in all severe cases the breathing is very much oppressed, with nothing like acute pain; cough is usually among the first symptoms, and, not unfrequently, very severe, increasing the pain in the forehead, which is almost invariably present to a very considerable extent. The cough is at first quite dry, but soon large quantities of matter are expectorated; at first, a frothy white mucus is raised, becoming mixed

with blood as the disease advances ; the cough is freer, especially in the morning ; the respiration is often wheezing, and often much oppressed, inspiration being difficult ; the skin is husky and dry ; pulse frequent but not full or hard, and there is a flushed state of the face ; fever ; a furred state of the tongue ; scanty and high colored urine, and, in many cases, nausea and vomiting. The excitement in these cases abates in the morning, but increases in the afternoon and evening, in the same manner as it does in febrile and inflammatory diseases. In general, as the disease advances the matter expectorated becomes thinner and more brittle, and loses much of its tenacity. The countenance is moist and pallid, but very little pain in the chest, but rather a sense of oppression ; the flush on the cheek is diffused and not circumscribed, as in cases in which the inflammation is mainly in the substance of the lungs.

There is much tendency to effusion in this case. Indeed, it is a matter of much surprise to all who are not duly aware of the great extent of the pulmonary mucous surface, to see such enormous quantities of the mucous secretion as are thrown off in a case of this kind. Infants and very old persons, are said to be comparatively exempt from this disease. However, it certainly very often attacks small children, and, in such cases, the matter expectorated is not ordinarily tinged with much blood, and in very many cases no signs of blood can be noticed. Much of the peculiar character of this malady is attributable to the sanguineous congestion that exists in the case, in the lungs. When the mucous secretion becomes very copious, cough abates in severity ; the soreness, tension and fever, subside to a considerable extent ; the farther down the mucous membrane of the bronchial tube is in a state of inflammation, the greater the dyspnoea, the sense of impending suffocation and oppression, and the more incomplete the oxygenation of the blood will be, as well as its decarbonization, and, as a matter of consequence, the more rapid will be the depression of strength ; all parts immediately feel the depressing influence of such a state of things.

Some cases of this kind seem to be accompanied with a spasmodic tendency in the bronchial tubes. These cases are marked by paroxysms, not very dissimilar to those of asthma, occurring

at uncertain periods, and they are often so very severe as to threaten immediate suffocation. Bronchitis is not unfrequently complicated with bilious and gastric symptoms, such as nausea, occasional vomiting, yellow tinge of the skin and eyes, tenderness in the epigastrium, a loaded and foul tongue, with a remittent form of fever.

In other cases, which commence with all the well developed symptoms of bronchitis, and continue with severity until such a modification takes place, as to constitute the case one of actual inflammation of the substance of the lungs, this condition is marked by increase in the difficulty of breathing, which seems to occur in paroxysms; a wheezing respiration; the patient finds difficulty in speaking; the expectoration is more completely tinged with blood. Those symptoms dependent on deficient aëration of the blood, are a pale and livid state of the face; a purplish hue of the lips; cold state of the extremities; pulse small and feeble. A mucous rale, which appears to be almost universal over the chest, can be heard. It occasionally happens in cases of this sort, that one of the larger bronchial tubes becomes obstructed by a concrete mass of mucus, and almost instantaneously proves fatal.

Physical signs are, that percussion produces the same sound on both sides, and the sound is clear. The dry, sonorous and sibilant rales, in the earlier stages of the disease, but afterwards the moist or mucous rales, more or less mingled with the dry, are noticeable in the case. The respiratory murmur, though generally heard over the whole extent of the lungs, is found to be absent in certain locations, especially in the advanced stages of the disease.

Morbid appearances are, that the bronchial mucous membrane is thickened, red and inflamed, often rough and deprived of its natural polish, and, in a very few cases, rough and gangrenous. The tubes are much loaded with the undischarged mucous secretion.

Causes. Among the various causes which may be concerned in producing this disease, none is so frequent as cold. It is, perhaps, more apt to produce this malady, when applied partially, as on the back of the neck, chest, or to the feet, or to the whole of the body when it has been previously heated and in a state of perspiration, from fatigue or any other cause. Sometimes it is

suddenly produced, by passing from a cold room into one which has a high temperature suddenly, and by the inhalation of irritating vapors or dust. It is very apt to occur in the latter part of the fall, winter or spring, when the atmosphere is pretty heavily charged with moisture. Cases may occur, however, in the midst of summer. It is apt to prove most fatal, in young children and very old persons. Bronchitis very often results from other diseases, such as measles, whooping cough, small pox, typhoid and scarlet fevers, inflammation of the lungs, pleura and pericardium, asthma, &c. Epidemic influenza is a very prolific cause of it.

Eclectic Reformed Practice. No class of medicines exerts so important an influence as well chosen emetics. In the treatment of this disease, every circumstance connected with the case seems to indicate their use in the strongest manner. So far as my own experience enables me to determine, I have found none to answer the purpose better than the acetous tincture of sanguinaria canadensis and lobelia, given in the usual doses every ten minutes, until free, full and copious vomiting takes place, at least as often as four or five times. This emetic should by all means be repeated as often as once or twice in twenty-four hours, should the condition of the patient's respiratory organs require it, which is indicated by a rather oppressed and difficult respiration.

Next in point of importance to proper emetics, stand the expectorant diaphoretics, which are also strongly indicated in the treatment of this kind of disease, and for the purpose of insuring the full benefits of their operation on the patient, the feet should be freely immersed in hot weak ley water, and the legs actively bathed with the same, for ten or fifteen minutes; and the same process extended over the whole body. After this preparatory process is properly carried out, the patient should be covered up warm in bed, with a hot brick to his feet, and a strong decoction made, by adding one quart of boiling water, and continuing the boiling process for half an hour or longer, to one ounce each of pulverized *asclepias tuberosa*, and *eupatorium perfoliatum*, and one-half an ounce of *sanguinaria canadensis*; after straining and sweetening, this should be taken as hot as the patient could bear it, in doses of from one or two tablespoonsful to one-third of a teacupful of ordinary size, every ten or fifteen

minutes, until it produces free and copious perspiration, which should be continued for several hours. For the further purpose of insuring more effectually the sweating process, the bitter herb fomentations, during the whole attempt to produce sweating, should be applied; it will not only act as a valuable auxiliary in the production of the desired perspiration, but will fulfill all the indications of a counter-irritant. The compound decoction above mentioned, promotes the perspiration, opens the respiratory passages, facilitates expectoration, and increases the urinary discharge, as well as produces a moderate degree of nausea, all of which indications it is very desirable to fulfill, in the most effectual manner in the treatment of this disease. The bowels, in cases of this kind, require to be moved occasionally; and for this purpose, nothing seems to answer better than the anti-dyspeptic pills, in doses of two or three, and if they should fail to operate, to repeat the dose in four or five hours. For operating on the bowels, in cases of young children, the neutralizing medicine in the usual doses, in such cases, will be found well adapted to the treatment of the case. It not only produces the desired operation on the bowels, but acts very efficiently on the kidneys, and thus acts an important part in diminishing the bronchial mucous inflammation. The discharges from the bowels are very much charged with mucus, and appear, in this way, to diminish the accumulation on the lungs. A combination of equal parts of the *apocynum cannabinum* and *asclepias tuberosa*, taken freely in the form of decoction or infusion, will be found a valuable medicine for the purpose of producing some nausea and laxative effect on the bowels, as well as for their diuretic and expectorant virtues.

For all the purposes of an admirable nauseant, mild emetic and valuable expectorant, the following preparation answers remarkably well. The tincture is prepared as follows: Take bloodroot, lobelia herb, skunk cabbage root, and pleurisy root, each one ounce, in coarse powder, alcohol, three pints, and water, one pint; allow it to stand two weeks, frequently shaking it. Prof. J. King, of the Memphis Eclectic Medical College, to whom I am indebted for this valuable compound, remarks as follows:

“This is a valuable preparation for croup, whooping-cough, bronchitis and asthma, and is excellent for children as an emetic,

being gentle, safe and certain, and for all who are troubled with difficulty of expectoration, tightness across the chest, or who are loaded with phlegm. I invariably use this tincture, in all cases, where it is necessary to vomit children, and so valuable do I deem it that I would not be without it for a great consideration."

One or two teaspoonsful may be given to an adult as often as may be necessary, to promote the freedom of expectoration; it should be given in a little slippery elm tea, or any other convenient vehicle. Children from one to five or six years old may take from one-half to a tablespoonful every ten minutes, till it vomits several times freely. It should be given in a little warm, sweetened water or tea for this purpose. Large sinapisms should be used freely in this case whenever there is much oppression of breathing. Onion poultices applied over the chest for the same purpose, will be found highly useful. The onions for this purpose should be first well roasted and bruised, and formed into a poultice. The vapor of hops and hoarhound, formed by boiling in equal parts of water and vinegar, will be found a valuable means to promote the freedom of the expectoration and to render the mucous secretion less tenacious.

This measure should be frequently repeated, according to the urgency of the symptoms.

XXIII.

DYSENTERY: INFLAMMATION OF THE MUCOUS MEMBRANE OF THE LARGE INTESTINES, ESPECIALLY THE COLON AND RECTUM.

This disease, when fully formed, is marked by small, bloody and mucous stools, attended with griping tenesmus pain in the bowels, and fever.

It may commence in quite a variety of ways; for example, an attack may be ushered in by a distinct chill, which may be followed by a fever, without, at first, any signs of enteritic inflammation, but in the course of a day or two, the signs of dysentery may be developed. It may also commence with pains in the bowels, griping and tenesmus, from the very commencement, without being preceded either by chill or fever; and again the symptoms of enteritic inflammation may commence simultaneously with those of the chill and fever; and, in other cases, may be ushered in as a consequence of previous diarrhoea; the attack may also be immediately preceded by one of either cholera-morbus or Asiatic cholera, and very soon assume the well defined characteristics of dysentery. It may likewise exist, in complication with a great variety of other forms of disease, such as bilious remittent fever, as well as several other forms of fever, rheumatism, &c.

It may exist under every variety of gradation, from the mildest to the most malignant and fatal disease known in the catalogue of human maladies. It is, perhaps, not an easy matter to determine, at all times, upon what this great diversity of the disease depends. Much will depend on the differences in the degrees of activity of exciting causes, as well as on the special constitutional predisposition of the patient to the disease at the time of the attack. No fact is better established, in reference to the history

of dysentery, than this extreme difference in the violence of the malady, at different seasons of the same year, and during successive years of its epidemic prevalence. Throughout the whole of one year, it may assume a very mild and manageable form, when, during the next, it may present us with the frightful evidences of its desolating ravages on every side, in despite of every effort put forth to stay its onward progress, and to wrest the sufferer from its deadly grasp. It may prevail either endemically or epidemically. I will, however, without any further preliminary observations, proceed at once to enumerate the symptoms of the simple and uncomplicated form of the malady.

Symptoms. In the commencement, a little uneasiness and pain in the bowels are usually felt, and after the lapse of a short time discharges take place, at first, perhaps, consisting principally of the contents of the bowels, but subsequently of very little else but mucus and blood. These discharges are preceded by a sense of tormina and griping, and the griping pains do not cease till the discharge takes place, when a little temporary ease follows, which, however, is not of long duration; for soon again a sense of weight, burning and general uneasiness is felt, and a desire again to get over the stool, which, when yielded to, the patient is only able to discharge a very small quantity of blood and mucus as before. Sometimes, however, the discharges consist almost exclusively of blood; in such cases they are regarded as more favorable. These discharges occasion a burning sensation in the rectum, especially severe when they are in the act of passing. The feeling of tenesmus increasing, the desire to be straining over the stool is almost incessant. The number of passages from the bowels is almost incredibly great, occurring as frequently as from fifteen to twenty, to one hundred or more times per day. In some cases, small hardened lumps of faecal matter are discharged, called scybala, productive often of much cutting and severe pain in the act of escaping. The discharges in nearly every instance are preceded by a griping sort of pain, of greater or less severity; the discharges at first have but little smell, but afterwards a peculiarly disagreeable odor. The extent of the inflammation in these cases may be ascertained with considerable accuracy by making proper pressure along the course of the colon,

and if much pain is felt below the stomach, and across the abdomen, the presumption is that the arch of the colon is affected, and indeed, the whole of the intestine. The tongue is at first covered with a white thick coat of fur, which gradually acquires a darker aspect as the disease continues to advance; the margin and tip of the tongue often become red; occasionally there is nausea and rarely vomiting. There is in every case of ordinary severity more or less fever; indeed it occasionally happens that the attack is ushered in with regular and proper stages of paroxysm of fever, before any signs of enteritic inflammation are developed. Accompanying the fever, which is present in this complaint, there is an obstinately dry and husky state of the skin, and in many cases there may be slight occasional sensations of chilliness; thirst is usually great; the pulse is accelerated, and usually somewhat strong and forcible; the urine scanty and high colored; the liver in most cases torpid, and in a state of sanguineous congestion. Notwithstanding the multiplicity of discharges which the patient has, most of the intestinal track is in a state of obstinate constipation, a small portion of the colon and rectum being in a state of preternatural activity only so far as the inflammation actually extends. In this disease there is usually much tenderness to pressure over the whole extent of the abdomen. Colliquative diarrhoea takes place in the more advanced periods of the disease, and may be justly regarded as a very unfavorable symptom. A small, fluttering or intermitting state of the pulse may be regarded as indicating some danger, more especially when it is accompanied by a cold, clammy and sticky state of perspiration over the surface generally. But the appearance of bile in the discharges, a moderately moist and warm skin, with an increase in the quantity of the urine and a sedimentous deposit, accompanied with abatement of abdominal pain, may be regarded as showing favorable changes.

Occasionally, in cases of this kind, the patient complains of oppression in the epigastric region, frequent vomiting, icteric hue of the skin, eyes and tongue, the urine being highly charged with bilious matter. When thus characterized, they are cases of *bilious dysentery*.

In ships, besieged towns, prisons, camps and marching armies,

where causes calculated to depress the vital powers and influence the constitution exist—a form of dysentery sometimes prevails which has been denominated *adynamic*, camp or jail dysentery. Cases of this kind are marked by symptoms of peculiar severity and malignancy, such as great thirst, a frequent, feeble, irregular pulse, nausea and vomiting, a foul, brown or black dry tongue, often with a dark sordes about the teeth, a dusky skin, with livid spots or petechia on it; the skin sometimes cold, and at others warm; reddish-brown or blackish discharges from the bowels, more copious than in the common forms of dysentery; hemorrhages; low delirium; stupor; subsultus tendinum. In these cases there is great prostration of strength from the very beginning. This is usually a very fatal form of the disease, unless promptly arrested.

Dysentery may also be complicated with intermittents and remittents. In fact, either of these miasmatic forms of disease may manifest themselves in the form of dysentery, coming on once a day, or once in two days, or indeed assuming any of the types of intermitting fever; or the case may assume the form of remitting fever. In all such cases, as has been suggested before, they should be regarded and treated as cases of intermittent and remittent disease, the dysenteric symptoms being matters of secondary and inferior consideration.

There is also a form of dysentery associated with typhus fever which has been by some denominated *typhus dysentery*. This form bears the same relation to the typhus fever, as the bilious dysentery bears to the bilious intermitting or remitting fever, and derives no additional consequence, only such peculiar features as may be dependent on its association with either of these cases respectively.

Dysentery prevails as an epidemic, endemic, or sporadic disease; more commonly, however, as an epidemic; sometimes remarkably mild in its character, and at others very malignant and severe. Nothing can exceed the diversities of character which it may assume in this respect at successive seasons. During one season it may be very mild and manageable, and the very next it may be very severe, and yield with much difficulty to treatment.

Morbid appearances observed after death, are, signs of inflammation and ulceration of the *rectum* and lower portion of the colon. Sometimes, indeed, the whole of the colon exhibits signs of inflammation. There is in these cases evident thickening of the mucous membrane as far as the inflammation may have extended. Sometimes gangrenous spots may be seen on the surface of the bowels where superficial sloughs penetrate even through the coats of the intestine, except, perhaps, the peritoneal coat. The mucous coat appears to be everywhere thickened, at least as far as the inflammation may have extended.

Causes. The predisposition to attacks of this disease seems to be greatly increased by the long continued influence of a high temperature, augmenting the irritability of the mucous membrane of the alimentary track, relaxing the skin and increasing also its susceptibility to the influence of cold, disordering, at the same time, the liver, so as to make it much more susceptible to morbid impressions. No cause is more apt to excite this disease into action than cold, especially when it is combined with moisture. Cold, damp night air is very apt to produce an attack, particularly when the patient's system has been much relaxed by unusual muscular exertion and fatigue; exposure, under such circumstances, is very apt to produce an attack. Unripe and acid fruits may, and often are concerned in the production of this complaint. Indeed, it seems that anything which is very liable to undergo the acetous fermentation is very apt to produce an attack. Some pathologists contend, with much plausibility, that the existence of an acid in the alimentary canal is an indispensable preliminary condition to the production of a well marked case of dysentery. So far as my own observation and experience has enabled me to form an opinion in reference to this matter, I am led to favor this view of the subject, for I have scarcely ever known a case of dysentery in which the evidences of acidity did not abound to a very considerable extent. I am further led to favor this view of the pathology of dysentery, from having witnessed the beneficial effects of alkaline preparations in the treatment of its attacks. Many other reasons might be adduced to sustain this view of the subject, and the principal objections which have been urged

against the acid theory, are very easily met and refuted, or, in some manner, answered successfully.

There can be no just grounds to deny the assumption that acids may not acquire such a degree of activity as to become the source of irritation and inflammation, which take place on the mucous surface of the bowels in this case.

Eclectic Reformed Treatment. As it regards the measures which should be adopted in the remedial management of this malady, much will depend on the stage and violence of the attack as well as on the constitution and temperament of the patient, and the epidemic constitution of the year. In most common cases of the past season, I have found admirable effects to result from the use of the podolphyllin and neutralizing physic, both in a state of fine powder, given in the proportion of three-fourths of a grain of the former to three grains of the latter, in a little sweetened water, once in three hours, until it operates very actively both on the stomach and bowels, some four or five times; at least, given in this manner to the extent of two or three doses, it not unfrequently vomits the patient three or four times; also operates several times as a purgative. After the operation is completely over, the administration of the leptandrin, in doses of two grains every two hours, in conjunction with about two or three grains of the diaphoretic powder, will be found well calculated to prevent any further tormina, tenesmus, or griping pains, which may be inclined to mark the further progress of the case, should the attack be not entirely subdued. The success of these measures in the treatment of dysentery, stand, so far as I have been able to learn, without a parallel in the history of practical medicine to any and all plans and systems whatever. During the past summer and fall, I treated several hundred cases of this disease, according to the foregoing plan, in this city, without the loss of a single case. All were cured with an astonishing degree of promptitude, and a like degree of success has attended this practice wherever it has been vigorously carried out in the hands of others during the past season. My experience in this plan of treating this disease has been limited to the past summer and fall, and I am consequently unable to determine the efficacy of this particular treatment of the disease in question, as it might present

itself at other seasons. The presumption is, however, from the completely controlling power which it seemed to manifest in the very severe form which prevailed during the past season, that a similar character of success might be anticipated in the disease as it might hereafter prevail.

Should the foregoing measures fail to afford the desired relief, the patient should be submitted to the action of the rum sweat, and the effects should be continued by placing hot bricks or boiled ears of corn, hot, enclosed in a proper envelop, at the feet, back, legs and thighs of the patient, who should, at the same time, drink freely of some warm diluent tea, as often as once in ten or fifteen minutes. The common sweating powder answers this purpose remarkably well, prepared by adding one pint of boiling water to one ounce and a half of the powder, and allowing it to steep or simmer half an hour or longer, until the strength is out, then take half a teacupful every twenty minutes, hot as can be borne, and keep the patient, if possible, in the perspiration several hours, if necessary. The success of this measure is very much promoted by the previous use of the alkaline bath, which, under all circumstances, seems to have a very good effect in preparing the system for a favorable perspiration. This measure should be repeated according to circumstances.

Some of the cases of this disease require the use of emetics of the milder kind, such as the acetous tincture of *sanguinaria canadensis* and *lobelia inflata*, to be given as usual, to the extent of operating with a moderate degree of freedom whenever the circumstances of the case might seem to require the operation of an emetic.

Many of the milder cases of this disease seem to yield speedily to the operation of the neutralizing extract; or neutralizing physic given to the extent of operating on the bowels in a mild way, occasionally. Pour one pint of boiling water on one ounce of the ingredients for this preparation, and simmer it for half an hour or longer, strain, sweeten, and take two tablespoonsful every hour until it operates, and then use it in smaller quantities and at more distant intervals until the disease is completely checked.

Advantage may be gained in the treatment of this disease by

inducing the patient to subject the parts most affected to the action of the bitter herb fomentation, by sitting over it as he would the stool. The tenesmus, pain, and tormina, are generally much relieved by this process, and even while the patient is in bed these sensations of distress are much relieved by placing a hot iron or brick at the termination of the rectum, and maintaining it there so as to keep up a sweating process, as much as possible, of all the neighboring parts. Mucilaginous and soothing drinks, such as flaxseed tea, marshmallows tea, or infusion of *ulmus fulva*, will be found very appropriate drinks. Injections of neutralizing physic thrown into the bowels occasionally, with mucilages and anodynes, and nervine agents, will be found to exert a very beneficial influence in the treatment of this disease, and should not be omitted.

As an astringent and healing medicine in this disease, a strong decoction of the *geranium maculatum*, made by boiling in sweet milk, constitutes an excellent preparation for children, or, indeed, older persons, to be given once in an hour or two, in doses of one tablespoonful or more, according to the age of the patient. This medicine is sometimes given with much advantage in connection with a strong tea of the leaves of *rubus strigosus*, which is also a mild astringent and antiseptic of decided value. The occasional application of an extensive mustard plaster to the abdomen, will be useful in diminishing the inflammation, pain and soreness in this part, throughout the whole period of the treatment.

A valuable domestic remedy is prepared by taking equal parts of vinegar and water, hot, and dissolving common salt in it until it is completely saturated, and giving it in doses of a tablespoonful once in an hour or two, until it operates on the bowels, and completely changes the character of the discharges, so that no blood is seen in them. This I have often known to effect cures when nearly all the usual measures relied on, had been ineffectually tried.

XXIV.

ACUTE HEPATITIS.

This is a disease which we occasionally encounter in practice, more especially during the colder and more variable seasons of tropical climates. It consists essentially of acute inflammation of the liver, and its peculiar features are materially modified by the exact location of the inflammation.

The symptoms which mark its attacks, are ordinarily about as follows. More or less acute pain in the right hypochondriac region, sometimes in the epigastric and left hypochondriac, increased by pressure; this pain not unfrequently extends to the shoulder and to the clavicle, sometimes with a much greater degree of severity than is experienced in the region of the liver; and it is found that the pain is very much aggravated when the patient lies on the left side; the character of the pain depends on the portion of liver which is mainly involved in the inflammation; for instance, if the inflammation shall be principally located on the surface, affecting more or less the peritoneal coat of this organ, the pain will be much more acute and lancinating, than if the inflammation affect only the substance of this organ; we shall observe that the pain will be of a much duller character, and pass with so much intensity to the shoulder or clavicle. The respiration is difficult, with a dry, hacking kind of cough, and not unfrequently there is nausea, with a kind of bilious vomiting, with an icteric hue of the eye and skin. The secretions appear to be charged with more or less bile, especially the urine, causing a sickening sensation when it is evacuated; the tongue is covered with a yellowish fur, and there is a bitter taste in the mouth; the pulse is commonly strong, hard and full, though in some few cases it may be small and weak throughout the whole course of

the attack; the bowels are almost invariably costive in cold and temperate latitudes; but in warm climates it not unfrequently happens that the bowels are loose, and that copious liquid and slimy discharges take place, which appear to extinguish the strength rapidly and tend to a fatal termination in a brief period of time. From the intimate sympathetic relations which exist in the diseased organ and the brain, delirium is very apt to exist as a symptom, perhaps more so than in any of the phlegmasial diseases. If the convex surface of the liver should be the principal seat of the disease, then there will be more pain in the shoulder, more oppression of respiration, more cough, and in short much more evidence of its influence on the lungs. If, on the other hand, the concave surface shall be the principal seat of the disease, then the symptoms which arise, will resemble more closely those which would result from a diseased state of the abdominal viscera; there would be more gastric distress, nausea and vomiting.

Diagnosis. It becomes necessary, in the examination of this malady, to distinguish it from certain other forms of disease, with which it is liable to be confounded, by a careless and inattentive observer.

From pleurisy it may be distinguished by the character of the pain being of a more darting and lancinating nature in pleuritis than in hepatitis; by the fact that respiration in pleurisy is chiefly performed by the abdominal muscles, and in hepatitis by the intercostal; the skin in cases of hepatitis is of a much yellower tinge than it is in pleuritis. The pain is not only of a duller kind in cases of hepatitis, but it extends very generally to the clavicle or shoulder blade, which is not the case in pleuritis. A deep inspiration is productive of much more pain in pleuritis than it is in hepatitis; pressure on the intercostal spaces gives rise to severe distress and pain in pleurisy, while in the case of hepatitis it does not produce much pain. The cough is much more severe and respiration more difficult in pleuritis than in hepatitis. There is bloody expectoration often in pleurisy when the inflammation extends to the pleura; not so in hepatitis, except in such cases as are complicated with pneumonia.

Hepatitis is distinguished from inflammation of the lungs, by

the state of the respiration being more difficult in the latter than in the former; more cough in the latter than in the former. In inflammation of the lungs there is bloody expectoration, in hepatitis none. Respiration is performed in pneumonia chiefly by the abdominal muscles, and in hepatitis by the intercostals. The skin in hepatitis has a yellow tinge, in pneumonia more nearly of its natural color. In cases of inflammation of the lungs a circumscribed flush is seen on the cheek, and in hepatitis there is no such flush on the cheek. Hepatitis is distinguished from gastritis, by the character of the pain in gastritis, being of the burning kind in the latter, and there being a much greater degree of muscular prostration in gastritis than in hepatitis. In gastritis the pulse is small and corded; in hepatitis full, hard and strong.

Breathing in gastritis is performed chiefly by the agency of the intercostal muscles, and in hepatitis the same; but there is in hepatitis an extension of pain to the shoulder, and in gastritis no such extension occurs. The prompt rejection of hot drinks when taken into the stomach in gastritis, and their retention in hepatitis, are circumstances which serve to characterize these cases very distinctly.

It can also be very easily distinguished from the spasm of gall ducts by the intermitting character of the pain in the latter case, and its continuous nature in the former case. In hepatitis the skin is hot and dry, but in spasm of the gall ducts it is nearly, if not quite, natural.

These circumstances are sufficient of themselves to make the proper distinction between the various cases with which it may be blended, and the form of disease under consideration.

Acute hepatitis usually terminates by resolution, which is the most favorable mode of termination; sometimes, however, it terminates by the formation of abscess, which may point in different directions in different cases. Occasionally, it points in such a manner that its contents are discharged through the common duct into the bowel, and in other cases it points towards the thorax, and the matter may ultimately be discharged through the respiratory passages by expectoration, as in cases of pulmonary abscess. Adhesions may form between the peritoneum lining the surface of the liver and the partial investment of the same membrane, which

attaches itself to the arch of the colon or some other portion of the intestinal track, and by ulceration a direct communication be formed between the cavity of the abscess and that of the bowel, and the matter be poured directly into the bowel. Gangrene may be mentioned as one of the rare terminations of hepatitis.

Causes. Among the various causes which may be concerned in the production of this disease, perhaps none plays a more important part than the influence of cold, operating on the system, after it has been subjected to the effects of long continued heat, which exercises a powerful relaxing effect on the whole body, and renders the tendency to morbid impressions much greater by virtue of a great accumulation of excitability on the sentient extremities of the nerves of the various secretory surfaces, and especially of the skin and liver. Both of these tissues are brought under the influence of a high atmospherical temperature to a much greater extent than any of the other organs of the body, as may be readily perceived by a reference to the amount and character of their peculiar secretions. When we reflect on this fact, so generally acknowledged by pathological writers, as well as the additional fact of the very close and intimate sympathy existing between the skin and liver, we cannot fail to see that a great aptitude must necessarily exist to the occurrence of this disease under the influence of the circumstances now under consideration. It may result from the influence of other and different causes, such as wounds, injuries, bruises or blows, and the suppression of customary evacuations, hemorrhoidal discharges, and also from the excessive use of ardent spirits. Violent fits of anger and rage are occasionally concerned in originating an attack of this complaint.

Miasmatic agencies are not by any means unfrequent causes to operate in laying the foundation of an attack of this complaint; hence the greater frequency of its occurrence in the miasmatic districts of hot climates, as well as in temperate latitudes.

Eclectic Reformed Practice. There are perhaps very few phlegmasial diseases affecting the human body requiring a more thorough and efficient course of evacuant treatment than this, and very few in which this plan of treatment appears to be better borne and is more promptly successful. The administration of

the hepatic powder for some six or eight hours, in doses of one-third of an ordinary sized teaspoonful every hour, will be found a very proper preliminary step to the administration of an emetic, which may be composed of equal parts of finely pulverized sanguinaria canadensis, ipecac and lobelia inflata, given in doses of from one-half to a teaspoonful every ten or fifteen minutes, in a little warm water or tea sweetened, until it vomits the patient some four or five times freely. The prior use of the hepatic powders serves to prepare the system for a favorable and full operation by the emetic, and in like manner exerts a favorable influence in preparing the patient for the subsequent operation of an active and efficient purgative, which should, as a general rule, be used as soon as the operation of the emetic subsides. The podophyllin is found very well adapted as a purgative for this case, and it should be given in doses of one half a grain every two hours, until it operates actively some four or five times. This purgative exerts a specific and powerfully controlling influence in cases of this kind on the liver, and seems to be well adapted to the treatment of this as well as many other inflammatory diseases. It is very efficient in the promotion of the biliary secretion, and in the removal of congestions of this as well as of other parts of the body, and commends itself to the confidence and respect of all liberal and progressive practitioners of the healing art. I have known in many cases the most prompt and surprising relief to be obtained from the use of this agent in the management of attacks of acute hepatitis; and from the power it manifested in these cases, I am of opinion that it exerts a more decidedly controlling power than any agent known to the medical profession, not even excepting the mercurials.

The application of the alkaline bath at all times, when it is desirable to diminish the force, fullness and frequency of the pulse, and restore the action of the skin, becomes a remedial means of prime importance in the treatment of this case, and will be accompanied with the most salutary results, when timely and appropriately used—particularly, when it becomes an object, as it often does, to produce perspiration, it acts most powerfully in bringing about this result. Another measure commends itself to our confidence, in the treatment of those cases which are accompanied with

much pain, namely, a large sinapism over the region of the liver, which should be allowed to remain until it produces a powerful effect on the skin, by turning the surface quite red. This measure is not unfrequently productive of much advantage, by the relief of the pain and reduction of the inflammation.

One of the best forms of sweating medicine with which I have a practical acquaintance, in this disease, is the common sweating powders, prepared by adding one pint of boiling water to one tablespoonful of the ingredients, and making a strong infusion; strain, and take from one to three tablespoonsful every twenty or thirty minutes, as long as it may be desirable to keep up a free perspiration. The bathing process with the alkaline wash, should be used in connection with this.

The occasional operation of purgatives and emetics becomes necessary, in the prosecution of the treatment of severe attacks of this complaint. If there should be considerable enlargement of the liver, with a tendency to the formation of an abscess, I know of no measure upon which I should rely with so much confidence, as on the scarificator and cups, which should immediately be followed by either the irritating plaster or a suitable issue; in the event of either of these alternatives being chosen, the discharges which would follow should be kept up for some time. A pill, composed of extract of dandelion and pulverised *sanguinaria canadensis*, each one grain, and $\frac{1}{12}$ of a grain taken as often as once in two hours through the day, answers a valuable purpose as an alterative in all those cases in which there is a lingering degree of hepatic torpor, following an attack of the more acute form of the malady.

XXV.

CHRONIC HEPATITIS: CHRONIC INFLAMMATION OF THE LIVER.

This disease is one of remarkably frequent occurrence, and presents itself under numerous grades of violence: from the mildest degree of inactivity and torpor, up to the severest forms of chronic inflammation. Indeed, it would be difficult to find any case with symptoms of dyspepsia, which does not at the same time present us with many of those which are ordinarily considered as marking some grade or other of what is commonly termed chronic liver complaint.

Symptoms. A dull pain in the region of the liver, sometimes in the right and sometimes in the left side, frequently extending to the shoulder blade or clavicle; slight hacking or dry cough; a sense of weight or fullness in the region of the liver; bowels costive, especially in the earlier periods of the attack, and, in the more advanced stages of the disease, costiveness is not unfrequently alternated with looseness, affording, in many instances, evidence of the formation of abscess, and a discharge of its matter into the bowels through the common duct of the liver, or in some other manner; a sense of heaviness and fullness in the right hypochondriac region, as well as more or less tenderness on pressure; a harsh, dry, constricted state of the skin, and a cold state of the hands and feet; sometimes, however, a sense of heat in the palms of the hands and soles of the feet, more especially in the advanced stages of the complaint, with hectic fever and night sweats; emaciation and debility. Also a numerous train of dyspeptic symptoms, such as eructation of acid materials; heart burn; a sense of fullness about the stomach, and oppression; tongue covered with a brownish fur; head ache or dizziness; yellowish tinge of the skin and eyes;

urine small in quantity, and high colored, and the discharges from the bowels are often of a pale color; patient often experiences slight chilly sensations, followed by febrile exacerbations, more especially towards evening; loss of appetite; palpitation; nausea and sometimes vomiting; often swelling and fullness in the region of the liver; sometimes pain in these cases extends to the small of the back; pulse is generally small, quick and somewhat corded; loss of appetite, and weakened, imperfect digestion; stupor and sleepiness are not unfrequently present; a feeling of restlessness and general uneasiness is felt. The pain consequent on the existence of inflammation, varies in character according to the special seat of the inflammation. When it is mainly seated on the upper and convex surface, affecting the peritoneal investment of that organ, the pain is much more acute, and there is a more decided extension of the effects of the disease to the viscera of the thorax, giving rise to pulmonary symptoms. But when the inflammation affects the internal structure of the liver, then the pain is much duller and more obscure, and there is not so striking a development of thoracic symptoms, neither is there so much pain in the clavicle and shoulder. When the inflammation affects more particularly the inferior surface, and involves the peritoneal coat of this organ, it is observed that the pain is more acute, and there is much greater disturbance of the abdominal viscera, giving rise to a greater variety of gastric symptoms, and much less intensity of effect on the clavicle and shoulder, by the development of pain. In addition to the symptoms already named, the patient's position is not very erect, but somewhat stoop shouldered, inclining forward. The foregoing symptoms, in their various degrees of combination and connection, will pretty effectually cover all the symptoms that present themselves in this disease, which is susceptible of so much variety in the degrees of its violence.

Causes. Chronic hepatitis may follow as an effect of the acute variety, or may result from the operation of quite a variety of causes which are known to be capable of giving rise to it. Slow inflammatory attacks of disease generally operate in the production of this form of complaint; such as cold, which in a very gradual manner often results in producing confirmed attacks of this malady, by striking a torpor on the capillaries of the surface.

That influence is very promptly transmitted to the internal secretory surfaces generally, and especially to the liver. A corresponding degree of torpidity readily follows, and a state of morbid excitability grows up in this great central gland, which results in the gradual formation of the disease in question. Sedentary and inactive habits are quite liable to be concerned in the formation of this malady; a sudden check of perspiration, when the body is in a state of relaxation, will in many instances act as an exciting cause, more especially in hot climates, where the liver is almost constantly in a state of superexcitation, especially during the warm seasons of the year, when there is a much greater sensibility in this organ than during any other period of the year. This complaint seems to prevail much more extensively in hot climates, and in those districts of country in which miasmatic diseases abound, from which latter circumstance it has been inferred that miasma had a tendency to produce it. So far as my own observations on this point would enable me to form an opinion, I have no hesitation in declaring my conviction that this doctrine is well founded. A fruitful cause of this malady is the use of so much mercurial medicine; indeed, this may justly be regarded as one of the most prolific sources of the disease in this country, where this very foolish and pernicious practice is so generally tolerated. No custom is fraught with a greater amount of evil to the health and happiness of man, and none more richly merits the universal reprobation of all humane and benevolent minds. The perpetuation of this monstrous and murderous evil is predicated on the stupid and ridiculous conviction that exists in the minds of a large number of the medical profession, whose conservative and hide-bound notions of medical progress and improvement are such as would act as a most direful paralysis on all the brilliant and splendid advances of this truly noble and life-giving science, which are calculated to make it the glory and honor of the present enlightened age. But it is needless further to depict the consequences of a course of medication which is at once the disgrace and shame of such practitioners as are disposed to refuse to find any thing better and safer, and to repudiate every well directed effort for the introduction of a safer and more successful mode of practice.

Eclectic Reformed Practice. For the successful treatment of this malady several prominent and leading indications require to be properly fulfilled, such as the restoration of the functions of the liver and skin; the proper evacuation of the stomach and bowels; the production of an equal state of the circulation and excitability, and the gradual restoration of the tone and strength of the whole system. Among the agencies which are well adapted to the fulfillment of the required indications, the occasional administration of mild but efficient emetics and purgatives will be found highly useful, and worthy of confidence when judiciously selected and used. One of the best forms of emetic is prepared by taking equal parts of finely powdered ipecac and lobelia, and giving it in doses of from half to a teaspoonful every fifteen or twenty minutes, mixed in a little warm water or herb tea, until it operates on the patient some three or four times freely. After the lapse of some two or three hours, an active purgative should be given, composed of twenty grains of pulverized senna leaves, ten grains of pulverized jalap, and one grain and a half of podophyllin. These evacuants should be administered as often as once a week, according to the foregoing directions. In addition to these measures of treatment, the restorative bitters should be given in doses of from one half to a wine glass full, morning, noon and night, a little while before eating. These bitters are among the very best tonic alterative and laxative medicines that are, at present, known. They not only act specifically on the liver, but tend to arouse it from a state of torpor and inaction to the performance of its proper functions, while they at the same time rapidly increase the tone and energy of the whole system, and promote the action of all the secretory organs to the faithful performance of their appropriate functions. It is remarkable with what rapidity the general energies of the system are restored under the use of this invaluable preparation of tonic and alterative bitters. This is among the very few medicines which, while it stimulates the stomach and bowels, and acts as a tonic, laxative and hepatic, has the power to restore their lost action and give them a proper tone, and improve them in a remarkable manner. Indeed, it may with great propriety be doubted whether or no there is within the knowledge of the medical profession any such valu-

able agent for the various purposes aforesaid. It possesses diuretic properties of no ordinary value, as well as perhaps has a more extended range of application than any other known preparation designed for the fulfillment of the same general indications. The anti-dyspeptic and hepatic pill will be found to be highly useful, in the treatment of this form of disease, by giving one morning and night in conjunction with the bitters above mentioned.

The patient should be directed to soak the feet thoroughly in hot weak ley water, as well as bathe the whole body in the same, by means of soft flannel cloths moistened in this alkaline wash, and applied with brisk and active frictions, and the patient's body after being thus bathed should be properly dried by the agency of warm and dry flannel cloths. This operation should be repeated every night and morning. This alkaline bathing process is of the utmost importance in the treatment of this as well as all similar cases, not alone for the purpose of cleansing the surface by the removal of all those lodgments of matter, by which the skin is incrustated, but also to impart a gently stimulating influence to that sensitive tissue, which will have a tendency to recall back the lost energies of cutaneous circulation, and thus restore to the skin its proper action and moisture, a condition absolutely indispensable to the complete and successful management of this disease. The influence of this simple, yet efficacious measure of treatment is not confined to the restoration of the proper functions of the skin alone, but is admirably adapted in its secondary influence to arouse the dormant powers of the internal viscera, especially the liver, stomach and bowels, and thus enable these parts to resume the exercise of their appropriate functions, the interruption to which was mainly attributable to the deranged state of the skin. There can be no question that one of the leading causes of failure in the treatment of diseases of this class, among the great body of the orthodox practitioners, is ascribable to the very general neglect of proper management of the skin. A judicious and well directed course of endermic medication scarcely ever fails to exert an influence on the system which favors the resolution of internal congestions, torpor, or inflammatory conditions, and thus tends to insure with

a much greater degree of certainty the salutary operations of all internal medicines; and as another consequence prevents the liability, to a considerable extent, of the occurrence of gastro-intestinal inflammation and other unpleasant events.

A most excellent alterative and hepatic for all those cases of this complaint, which are marked with much acidity of the stomach and other dyspeptic symptoms, will be found in the hepatic powder, combined with neutralizing physic, in the proportions of two parts of the latter to one of the former, taken in doses of one-third of a teaspoonful every three hours through the day, mixed in any convenient vehicle for the purposes of administration. I have known this compound, in several instances, to produce actual salivation, which continued for several days quite profusely, without giving rise to any of those disagreeable and deleterious effects usually consequent on salivation from the mercurial medicines, such as ulceration of the parts affected, and similar consequences. Neither will any injurious or permanently debilitating effects follow to the constitution from its use. It seems to act as an efficient deobstruent, as well as stimulant, neutralizer and tonic. It has been used in numerous cases with the most undoubted evidences of benefit. In connection with the other features of its operation already described, it operates on the bowels, at least, sufficiently to prevent the usual inconveniences of constipation, which are apt to complicate attacks of this complaint.

The alterative syrup will be found especially useful in all such cases as may be marked with the usual evidences of the scrofulous diathesis, such as lymphatic glandular obstructions, together with similar indications of scrofulous disease. It should be given in doses of from a half to a wine glass full, morning, noon and night. This is a valuable alterative tonic and deobstruent, and slightly laxative.

In those cases in which there is considerable enlargement of the liver, it will often be found that the application of the strengthening and adhesive plaster, by being placed directly over the affected organ, will exert a beneficial influence. But in a greater number of cases of this kind, the irritating plaster, continued in such a manner as to keep up a suppuration, will be

productive of a much greater degree of benefit, especially when it is continued for several weeks in succession.

A combination of equal parts of the extract of *leontodon taraxacum* and the pulverized *sanguinaria canadensis*, formed into common sized pills, will be found a most useful and reliable alterative, laxative and deobstruent, in cases of this kind, when given in doses of one pill every two hours. The characteristic evidence of their operation on the liver is a heavy, dull and aching sensation in the region of that organ, produced by this medicine.

For the relief of cases of this disease in which there is great debility and looseness of the bowels, leptandrin, given in doses of about one grain, with one-eighth of a grain of podophyllin, will be found to exert a favorable influence, provided this dose is repeated three or four times, daily. Much benefit will result in these cases from bathing the whole surface of the body with a strong decoction of the white oak bark, especially when the patient is assailed with the symptoms of the hectic condition. This measure is well adapted to impart tone and energy to the flagging power of the system. Another medicine may be confidently recommended for the relief of diarrhœa under the circumstances of the case, and that medicine is the black birch bark in decoction.

XXVI.

NEPHRITIS, OR INFLAMMATION OF THE KIDNEYS.

This disease commences differently when it is the effect of different causes. In some cases its invasion is sudden and violent, in others it is ushered in in a much more gradual manner, but with symptoms which are unequivocally indicative of an acute inflammatory state of these organs, either of one or both the renal glands, more commonly of one.

The symptoms are pain of a severe aching character, deep-seated in the lumbar regions, much increased by any concussion of the body, but not very materially aggravated by pressure over the region of the kidneys. The pain, although of a deep, dull, aching character, generally has periods of darting along the course of the ureters, and the testicle of the affected side is retracted, and there is a sense of numbness on the inside of the thigh. The pain in this affection is relieved by bending the body forward. Usually there is nausea and vomiting occurring in these cases as well as colic pains; in some instances the urine is small in quantity and high colored, and occasionally tinged with blood, with an urgent, frequent and troublesome desire to void it. If both kidneys are affected with inflammation, it occasionally happens there is nearly a complete suppression of the urinary secretion; the patient usually inclines the body a little forward, and toward the affected side when in bed and lying on the back; there is fever, thirst and a dry skin; the pulse is at first full, hard and strong, but soon becomes smaller, softer and weaker, particularly in those cases accompanied by nausea and vomiting to any very considerable extent, which features of the case naturally have a tendency to prostrate the vital powers more or less.

There is, perhaps, no other pathological condition (with which we have an acquaintance), with which this affection is liable to be confounded, but with psoas inflammation. Bending the body forward in cases of psoas inflammation produces pain, but it does not in nephritis. In nephritis, there are nausea and vomiting; in cases of psoas inflammation, none. There is retraction of the testicle in nephritis, but there is none in psoas inflammation, neither is there any very urgent and frequent desire to evacuate the urine, but this symptom is very apt to be present in cases of inflammation of the kidneys.

Causes. No circumstance is more frequently concerned in giving rise to this malady than cold, checking as it does, the function of perspiration and producing a chill; the effects of this check are felt in every part of the system, and should there exist at that time a greater tendency to irritation and inflammation in the kidneys than in any other part, an attack follows with all the attending train of consequences. Nephritis sometimes follows from a translation of rheumatism or gout from the extremities to the kidneys, and also from the recession of certain eruptive diseases. The irritation of gravel in the kidneys may, and often does become a source of this complaint. Violent straining and injuries may become a source of this malady. The active principle of cantharides and of spirits of turpentine may frequently produce this complaint, as both of these agents seem to have a specific tendency to act on the kidneys. Violent exercises, as jumping, lifting, or heavy loads, such are among various causes which may operate in giving rise to this complaint. If this complaint does not terminate in resolution in four or five days, it not unfrequently passes on to suppuration, and the purulent matter passes off with the urine. If this state of discharge should continue any considerable length of time, emaciation would follow, and not unfrequently, general hectic symptoms would take place. In some instances of the formation of abscesses in the kidneys, the abscess points externally, and ultimately a fistulous opening is formed, and a very disagreeable sore is continued for a long time, if not cured by proper management. The gangrenous termination is mentioned as being within the range of possibility by several of the systematic authorities.

Attacks of nephritis are unusually apt to give rise to a disposition in the constitution to the formation of the lithic acid diathesis, and a consequent liability to calculus disease.

Eclectic Reformed Practice. An active purgative administered in the early stage of the treatment of this affection usually tends very much to diminish the force of the inflammatory excitement, more especially, if it be of such a character as that its operation is of long duration. There are, perhaps, few medicines or combinations of medicines so well calculated to fulfill the designs of a purgative, in this case, as the podopoyllin, given in doses, to an adult, of one-half a grain every two hours, until two or three operations take place.

The use of the warm bath and the bitter herb fomentations will be found of the first importance in the treatment of these cases, if carried out vigorously in the earlier stages of the attack, more especially the repeated use of the partially medicated vapor bath as applied in the common bitter herb fomentation. The early and constant use of demulcent, soothing and efficient diuretics, such as the root of *althea officinalis* in decoction or infusion, prepared by adding one pint of boiling water to about two ounces of the green bruised root, and direct the patient to drink it freely; it operates as a diuretic very favorably, exerts a soothing, cooling and most decided effect in arresting the inflammatory tendencies of the disease. The application of a large onion poultice, prepared by roasting the onions and bruising them pretty thoroughly before forming them into a poultice, and applying the poultice directly over the small of the back, on the lumbar regions, and allowing it to remain for some two hours or more, when it may be substituted by a new one—I have known this measure to produce a very favorable influence, especially in connection with the use of the bitter herb fomentation at the same time applied to the abdomen, and the administration of some suitable diaphoretic, as the diaphoretic powders, given in strong decoction or infusion of *asclepias tuberosa*, drinking the latter freely and frequently, not only for the sake of obtaining its diaphoretic influence, but also for the purpose of procuring its diuretic powers of operation which it possesses in no inconsiderable degree. The occasional application of sinapisms, of a large size, to the

lumbar region, will be productive of a most beneficial effect in arresting the progress of the disease. Very mild emetics have been found quite useful in many attacks which had proved somewhat obstinate under the influence of the means that had been depended on for the relief of the patient.

Large emollient poultices of the *althea officinalis*, applied quite largely over the whole extent of the lumbar portion of the vertebral column, embracing also quite a portion of the lower dorsal, repeated and renewed pretty frequently would usually be followed by favorable consequences.

Cupping along the course of the spine, especially immediately over the lumbar region, will, in many cases, be found quite beneficial; and to restore the equilibrium of the circulation and the excitability of the system is a prominent indication, the fulfillment of which is extremely desirable in this as well as other forms of the disease, which claim the attention of the practitioners of the healing art.

In the treatment of those cases of this malady which have assumed the chronic form, the indications will, in many respects, be the same, modified, however, by the nature of the existing condition of the general system.

XXVII.

CYSTITIS ; OR, INFLAMMATION OF THE BLADDER.

This disease occurs occasionally, and it may involve the whole structure of the bladder, or only a small portion of this viscus, as in those cases where its force is mainly spent on the mucous membrane of the neck, and similar instances of its partial and local effects on other parts of the bladder.

The symptoms are, a sense of constriction over the region of the bladder ; a violent, lancinating pain, which is sometimes of the throbbing kind, extending to the perineum, and, in some instances, to the testicles, and to the upper and insides of the thighs. The pain and sense of constriction are in the hypogastric region. The pain is increased by the application of pressure, made on the hypogastric region or on the perineum. A great desire to evacuate the contents of the bladder ; frequent ineffectual attempts to urinate, with strangury or dysury. The urine which is passed off is of a deep red, tinged with blood. A constant stillicidium of urine takes place in many instances. The pulse is full, strong, hard and frequent ; nausea and vomiting ; costive bowels, and sometimes a sense of tenesmus, from the extension of the irritation to the rectum ; the patient feels depressed, and quite restless ; the skin is hot and dry, and tongue furred ; patient feverish and thirsty ; swelling and fullness in the loins and hypogastric region.

Like other inflammatory attacks this may terminate either in resolution, suppuration or gangrene, or in the thickening and induration of the coats of the bladder. The symptoms indicative of the occurrence of resolution are, a general moist and soft state of the skin ; a turbid and somewhat copious urine, passed without difficulty ; without the usual evidences of decreased strength, and general subsidence of the inflammatory and febrile symptoms.

Suppuration is not a frequent termination of this malady. This mode of termination is indicated by the subsidence of the violence of the symptoms of pain and fever ; with rigors or chills, and the appearance of a whitish, purulent matter, in the urine. The largest portion of the fatal cases, terminate in gangrene, which is shown by the sudden cessation of the pain, cold state of the extremities, profuse, clammy sweats, much prostration of strength, weak state of the pulse, a sunken aspect of the countenance, as well as hickup.

The causes are numerous ; such as mechanical injuries ; retained urine ; irritating substances in the bladder ; the absorption of the active principle of cantharides and the spirits of turpentine ; metastasis of gout or rheumatism ; irritating injections ; the introduction of instruments ; difficult parturition ; cold applied to the feet or any part of the body ; injuries produced by the use of obstetrical or other instruments.

Eclectic Reformed Treatment. Diuretic and mucilaginous drinks, taken freely, will be found highly useful in the management of this complaint. For this purpose, an infusion of the roots of the *althea officinalis*, prepared by adding one quart to two ounces of the green root, bruised, forms a good preparation, which, if taken in doses of from half to a teacupful every twenty minutes, until it produces copious diuresis, will have an admirable influence in arresting the pain and inflammation. Much relief is generally obtained by this measure, when pushed to the proper extent. The partial medicated vapor bath will be found highly advantageous, if used freely, so as to produce a copious perspiration. The common bitter herb fomentations, will answer the desired purpose remarkably well. In conjunction with this measure, the diaphoretic and easing powders, given in small portions, say five grains once in half an hour, so as to insure a copious perspiration, the tendency to which will be much increased by the application of the bitter herb fomentation, in substance, enclosed in cloths, to the lower portion of the abdomen, and renewed as often as once every twenty minutes or oftener, as hot as the patient can bear them. Some advantage will result from the use of hydragogue purgatives, occasionally given in mild and moderate doses. In the treatment of this affection, also, it will be found that much advantage

will result from large poultices of roasted onions, applied to the small of the back or over the lumbar vertebræ, as well as to the perineum. A strong decoction of the bark of the root of the peach tree, taken freely by the patient, is a medicine worthy of much confidence as a soothing astringent, laxative and diuretic, well adapted to many cases of this complaint. It may be prepared by adding one pint of boiling water to one ounce of the bruised bark of the root, and given in doses of from one to three tablespoonsful every half hour, for a longer or shorter period, as the circumstances of the case may seem to require.

In severe cases of this kind, cupping to the perineum and hypogastric region, will be found well suited to afford relief.

In the treatment of the chronic form of this complaint, some modification of remedial measures becomes necessary. A more rigorous and energetic course of local means will be found essential to success, especially in those cases in which the inflammation is principally located in the neck of the bladder, or at least near it; when a thickened state of the mucous membrane follows, and occasionally ulceration. The application of an issue or an irritating plaster, and the keeping up of a purulent discharge for five or six weeks, is a measure of the first importance. It should be used, however, with others which may be indicated by the circumstances of the case, and calculated to restore the functions of the skin, such as alkaline bathing and active frictions, and such constitutional alteratives as the alterative syrup, *stillingia sylvatica*, or restorative bitters, or, indeed, any similar preparations which may be thought to have an especial application to the case.

XXVIII.

ERITHISMUS MERCURIALIS. MERCURIAL FEVER.

We come now to the consideration of a form of fever which is dependent upon a specific and peculiar cause, and which has not ordinarily been recognized by systematic writers as a distinct and separate affection. Notwithstanding this, however, many have taken occasion to make some reference to this malady in a somewhat vague and indefinite manner, not appearing willing to acknowledge its existence as frequently as it occurs, nor indeed to have given the subject that extensive critical investigation which would qualify them to point out its peculiar features, under the variety of forms which it may be capable of assuming.

But few of the great mass of medical practitioners have realized, themselves, the obligations which they owe, by virtue of their position as conservators of the public health, professing, as they do, implicit obedience to the high and holy behests of a humane and benevolent science, to an honorable profession and to a confiding public, by an adequate examination of this fearful malady as it exhibits itself in the great variety of forms which it is capable of assuming.

On page 216 of Marshall Hall's work on the Principles of the Theory and Practice of Medicine, we are informed that Dr. Bateman, who ultimately fell a victim to this horrible malady, says: "It is evident that the features of the malady are not sufficiently known, even to the most enlightened members of the profession."

On the succeeding page of the same work, Mr. Pearson observes that the gradual approach of this diseased state, is commonly indicated by paleness of the countenance, a state of general inquietude and frequent sighing.

The respiration becomes more frequent, sometimes accompanied

with a sense of constriction across the thorax; the pulse is small, frequent and often intermitting, and there is a sense of fluttering about the præcordia. Further, erithismus is characterized by great depression of strength; a sense of anxiety about the præcordia; irregular action of the heart; frequent sighing; trembling, partial or universal; a small, quick, and sometimes intermitting pulse; occasional vomiting; a pale, contracted countenance; a sense of coldness; but the tongue is seldom furred; nor are the vital or natural functions much disordered. When these or the greater part of these symptoms are present, a sudden and violent exertion of the animal powers sometimes proves suddenly fatal. As it respects the manner in which this affection approaches, it will be found to be various in different cases. If an attack should come on while a patient is under the influence of a course of mercurial medication, in the progress of an attack of fever from any sudden exciting cause which may develop its effects, the patient will be apt to be seized with a rigor of more or less severity, which generally increases till he feels as if his bones were about to be dislocated, also with a most intense and urgent desire for acid drinks. These will probably be the most urgent symptoms at first, showing the change of character.

We have more frequently noticed it commencing with the following train of symptoms, in some respects not very unlike the symptoms of the forming stage of other fevers, namely: with stretching; yawning; lassitude; aching pains in the loins and extremities; a sense of weariness of the whole body; burning sensation along the whole course of the œsophagus, which in some instances extends throughout the alimentary track; the rigors commence and continue till the whole system is convulsed or greatly agitated, with a decided increase of the burning sensation already mentioned; an insatiable desire for acid drinks; an intolerable suffocating heat; a highly flushed countenance, imparting to the hand the sensation of calor mordax, or stinging heat, with mercurial fœtor in the breath, and in some cases from the emanations of the body; an accelerated, but quite compressible pulse, bounding at the rate of from 140 to 160 per minute; and a highly sensitive state of the skin, with the carotids beating violently. The exacerbations as well as remissions or intermissions are extremely

variant, both with regard to their respective degrees of violence and duration, as well as in regard to the periods of their recurrence.

The symptoms characteristic of poisoning by mercury exist in almost every imaginable grade of violence, from the mildest to the most malignant and fatal form.

Diagnosis. From other forms of fever it may be distinguished by the peculiar burning sensation along the œsophagus and alimentary canal; the very urgent desire for acid drinks; the longer continuance and greater severity of the rigors; the extremely sensitive condition as well as stinging heat of the skin; the very frequent but compressible state of the pulse; the fact that patients complain in the midst of severe rigors of intense heat; the mercurial fœtor in the breath and perspirable matter of the skin; the diversity in the various conditions of the pulse with respect to frequency, force and volume; the great variation in the duration, violence and time of the recurrence of the paroxysms; the slight coppery taste in the mouth; the soreness and paleness of the gums. In the rigors of the regular intermittent we find a sense of numbness, but in the rigors of mercurial fever there is a burning sensation in the skin.

The above list of symptoms will enable the accurate observer to distinguish this case from every other form of fever. It is very true that they do not all appear in every individual case of this disease, but it is believed a sufficient number occur to distinguish it with a good degree of certainty.

Eclectic Reformed Treatment. Inasmuch as there seems to be an alkaline poison produced by the operation of mercurials on the human system, by the union of certain principles with the acids of the body, producing thereby a deficiency in the quantity of the acid principle, which is shown on the part of the patient by the insatiable desire which he experiences for acid drinks, it indicates at once the proper measures of treatment. The indications of nature will at all times command the attention and respect of every practitioner who desires to attain to a point of eminence in his profession, which is in some degree commensurate with the honorable aspirations of a well balanced and properly directed mind. He who, in the language of a noted but misguided medi-

cal professor, undertakes to kick nature out of doors and disregard her admonitions, will find himself groping his way in the dark, throughout the whole course of his unprofitable and discreditable career as a medical man, and it would be far better for such a man to withdraw at once from the ranks of a profession which he must most certainly forever disgrace. But to return to the treatment, it will be found that acid drinks, such as lemonade, apple water, tamarind water, vinegar with water, may be taken pretty freely by the patient. At the same time the whole body should be bathed or sponged by vinegar, slightly warm, repeatedly, with a view of charging the system as completely as possible with the acid principle, which seems to be deficient as above suggested.

This treatment is generally productive of the most favorable results in moderating and subduing the violence of the excitement, more especially in those cases in which the attack arises from the effects of mercurials, but recently taken, or while the patient is under actual salivation, and is suddenly affected by cold, or some other cause capable of developing the poisoning effects of mercury.

In addition to the treatment above suggested, mild laxatives or purgatives, such as neutralizing physic, or the common hydragogue purgative, should be administered in their ordinary sized doses, whenever the circumstances of the case may seem to demand their use. The mild demulcent drinks are also very appropriate. Among these, perhaps none is better than the infusion of the root of the *althea officinalis*, taken moderately free as an occasional drink; the flaxseed tea or the mucilage of *ulmus fulva*, and perhaps a few others of a similar nature. Many of these cases which seem somewhat tedious, and incline to assume the chronic nature, will be greatly benefited by the use of the alterative syrup or Smith's anti-mercurial syrup, both of which are medical compounds of great value in the treatment of this, as well as many other maladies, which seem to be uncontrollable by the means ordinarily depended on for their relief.

INDEX TO VOL. I.

| | Page. | | Page. |
|-------------------------|----------|---------------------------------------|-------|
| Æsculapius deified | 4 | Asiatic Cholera— | |
| Ague and Fever | 40 | nature of | 549 |
| cold stage | 43 | prognosis | 551 |
| forming | 42 | reaction and convalescence in | 541 |
| hot | 44 | rice-water discharges | 544 |
| sweating | 45 | stages and symptoms | 537 |
| causes | 57 | treatment | 552 |
| complications | 53, 81 | Aspidium filix mas, remedy for | |
| diagnosis | 58 | worms | 599 |
| modifications | 46, 78 | Assyria, early history of medicine in | 4 |
| periodicity discussed | 50 | Bailey on Periodicity | 51 |
| post mortem appearances | 55 | Bell on Congestive Fever | 72 |
| prognosis | 57 | on Fowler's Solution | 68 |
| treatment | 58 | on Intermittent Fever | 70 |
| palliative | 58, 60 | Bengal Fever | 87 |
| radical | 62 | Bilious Colic | 495 |
| Ague, anticipating | 42 | anatomical development | 498 |
| deferring | 42 | cause and nature | 497 |
| erratic | 42 | symptoms | 496 |
| cake | 56 | treatment | 499 |
| masked | 47, 78 | Bilious Fever | 86 |
| American Electicism | 15 | treatment | 113 |
| Amygdalitis | 363 | Black Vomit, description | 177 |
| Anal Fistula | 482 | Bleeding in angina | 362 |
| description | 483 | Blood in yellow fever | 178 |
| treatment | 484 | Blood letting, effects of | 295 |
| Angina | 358 | Boerhaave's reform | 7 |
| cause of | 359 | Bone's Bitters, recipe | 83 |
| chronic | 362 | Bostock, quotation from | 8 |
| tonsillaris | 363 | Botanics | 12 |
| termination of | 365 | Bowels, inflammation of | 407 |
| treatment | 360 | acute | 408 |
| Ani, Prolapsus | 488 | cause | 413 |
| causes | 489 | diagnosis | 413 |
| treatment | 490 | symptoms | 408 |
| Anti-dyspeptic pill | 522 | treatment | 414 |
| Apthæ | 352 | chronic | 417 |
| cause and treatment | 352 | treatment | 418 |
| Armstrong on Typhus | 131 | obstructions and symptoms | 509 |
| Ascaris Lumbricoides | 584 | treatment | 512 |
| symptoms | 589 | Brain, inflammation of | 321 |
| treatment | 596 | anatomical relations | 327 |
| Ascaris Vermicularis | 586 | cause | 332 |
| symptoms | 589 | diagnosis | 326 |
| treatment | 596 | prognosis | 327 |
| Asiatic Cholera | 531 | symptoms | 323 |
| anatomical character | 545 | treatment | 333 |
| blood in | 543 | chronic | 337 |
| cause of | 546 | Broussais' theory | 31 |
| diagnosis | 549 | Buchanan, quotation from | 13 |
| history of | 532, 536 | Cancer of the Rectum | 465 |

| | Page. | | Page. |
|------------------------------------|---------------|--------------------------------|----------|
| Cancer of the Rectum— | | Cullen on Periodicity | 51 |
| treatment | 466 | Cynanche Tonsillaris | 363 |
| Cancrum Oris | 352 | cause and termination | 366 |
| Canker, cause and treatment | 352 | character | 364 |
| Case, Dr. | 370 | prognosis | 366 |
| Chapman's Nosology | 17 | treatment | 367 |
| Chills and Fever | 40 | Determination to Brain | 124 |
| Chomel's treatment of typhoid | 228 | Diarrhoea, symptoms | 419 |
| use of chloride of soda | 230 | treatment | 420 |
| Cholera Asphyxia | 531 | Digestion, process of | 391 |
| Cholera Epidemic | 531 | Dioscorea for Bilious Colic | 499 |
| anatomical character | 545 | Diseases, general distinctions | 17 |
| blood in | 543 | investigation of | 18 |
| causes | 546 | of the rectum | 459 |
| diagnosis and nature | 549, 550 | Dothin Enteritis | 201 |
| history of | 532, 536 | Dixon on Yellow Fever | 169, 187 |
| reaction and convalescence | 541 | Dogmatists | 6 |
| rice-water evacuations | 544 | Dyspepsia | 390 |
| recipes | 552, 554, 555 | symptoms | 391 |
| stages and symptoms | 537 | treatment, hygienic | 397 |
| treatment | 552 | medical | 404 |
| lecture on, by Dr. Morrow | 556 | Dysentery | 422 |
| report on, by Dr. Jordan | 560 | acute | 423 |
| Cholera Morbus | 523 | causes | 428 |
| anatomical character | 526 | post mortem | 429 |
| cause | 525 | prognosis | 428 |
| diagnosis and treatment | 527 | symptoms | 424 |
| symptoms | 524 | treatment | 430 |
| Chronic Dysentery | 438 | adynamic | 426 |
| treatment | 440 | epidemic | 435 |
| Classification of diseases | 16 | chronic | 438 |
| Clinic remarks | 457 | duration | 440 |
| Coleman, Dr. Asa, on milk sickness | 578 | post mortem | 439 |
| Colic, varieties | 493 | symptoms | 438 |
| bilious | 495 | treatment | 440 |
| cause and nature | 497 | Eclectic Medicine, its object | 12 |
| symptoms | 496 | its claims | 13 |
| treatment | 499 | Egyptian priests of antiquity | 4 |
| lead | 501 | Empirics | 7 |
| cause and nature | 504 | Enteric Fever | 401 |
| diagnosis and prognosis | 505 | Enteritis | 407 |
| symptoms | 502 | cause and diagnosis | 412, 413 |
| treatment | 505 | prognosis and post mortem | 411 |
| painters' | 501 | symptoms | 408 |
| wind | 493 | treatment | 414 |
| symptoms and treatment | 494 | chronic, symptoms | 417 |
| Colitis | 422 | treatment | 418 |
| treatment | 429 | Epidemic Cholera | 531 |
| Congestive Fever | 130 | anatomical character | 544 |
| complications | 143 | blood in | 543 |
| description of by Dr. Armstrong | 131 | causes | 546 |
| degeneration | 139 | diagnosis and nature | 549 |
| diet | 147 | history of | 532, 536 |
| malarial origin | 137 | prognosis | 551 |
| not contagious | 136 | reaction and convalescence | 541 |
| not typhoid | 135 | rice-water discharges | 544 |
| symptoms | 137 | symptoms and stages | 537 |
| treatment | 140 | treatment | 552 |
| Congestive Intermittent | 53 | Erratic Ague | 42 |
| Constipation, character of | 516 | Eye, disease of, a case | 345 |
| cause | 518 | Father of Medicine | 5 |
| symptoms | 517 | Fauces, inflammation of | 358 |
| treatment | 519 | causes and treatment | 359 |
| Contagion of Typhoid | 218 | chronic | 362 |
| Continued Fever | 200 | Fever, in general | 21 |
| Controversies in medicine | 8 | and ague | 40 |
| Costiveness | 516 | causes of | 36 |
| Crisis of Fever | 30 | classes of | 40 |
| Cullen's Nosology | 17 | congestive | 130 |

| | Page. | | Page. |
|-------------------------------------|-------|-------------------------|-------|
| Fever— | | Inflammation— | |
| continued | 201 | chronic | 270 |
| crisis of | 30 | ligatures in | 320 |
| follicular | 201 | Magendie on | 275 |
| intermittent | 40 | results or terminations | 255 |
| pernicious | 149 | symptoms | 249 |
| treatment | 154 | Tweedie on | 282 |
| remittent or bilious | 86 | treatment | 316 |
| treatment | 113 | bowels, of the | 407 |
| symptomatic and idiopathic | 31 | acute | 408 |
| typhoid | 300 | cause and diagnosis | 413 |
| treatment | 225 | prognosis and post mor- | |
| yellow | 163 | tem | 411 |
| treatment | 193 | symptoms | 408 |
| stages of | 22 | treatment | 414 |
| cold | 24 | chronic | 417 |
| declining | 29 | symptoms and treatm't | 418 |
| forming | 22 | brain, of the | 321 |
| hot | 26 | anatomical relations | 327 |
| Fissure of the Rectum, description | 479 | causes | 332 |
| treatment | 480 | diagnosis | 326 |
| Fistula in Ano | 482 | prognosis | 327 |
| description | 483 | symptoms | 323 |
| treatment | 484 | treatment | 333 |
| Flux | 422 | chronic | 337 |
| treatment | 430 | ear | 339 |
| Gastritis | 373 | treatment | 342 |
| acute | 374 | fauces | 358 |
| cause | 380 | cause | 359 |
| pathology | 378 | treatment | 360 |
| symptoms | 375 | intestines, small | 407 |
| treatment | 381 | treatment | 414 |
| chronic | 384 | large intestines | 422 |
| cause and diagnosis | 387 | mouth | 346 |
| symptoms, indigestion | 385 | cause and treatment | 348 |
| treatment | 388 | symptoms | 347 |
| Gastro-Intestinal Irritation | 121 | œsophagus | 371 |
| Gelseminum Sempervirens | 65 | cause | 372 |
| Gendron, M. | 219 | symptoms | 371 |
| Gerhard, Dr. | 201 | peritoneum, of the | 444 |
| Gibson, Dr. | 477 | acute | 445 |
| Gin Bitters, recipe | 83 | cause and diagnosis | 450 |
| Glechoma Hederacea, for colic | 507 | periodicity | 449 |
| Glossitis | 356 | post mortem | 449 |
| cause and treatment | 357 | prognosis | 451 |
| Good's Nosology | 17 | symptoms | 446 |
| Greece, medicine in ancient | 4 | treatment | 451 |
| Hale | 201 | chronic | 455 |
| Haynes, Dr., on milk sickness | 575 | symptoms | 456 |
| Hemorrhoids | 467 | treatment | 456 |
| cause of | 471 | stomach, of the | 373 |
| primitive type | 469 | acute | 374 |
| treatment | 472 | cause | 380 |
| Hemorrhage in typhoid fever | 208 | pathological phenom- | |
| Hepatic Disorder in remittent fever | 123 | ena | 378 |
| Hippocrates, account of | 5 | symptoms | 375 |
| Historical sketch of medicine | 3 | treatment | 381 |
| Hot stage | 44 | chronic | 384 |
| Humoralists | 32 | cause and diagnosis | 387 |
| Hunter, Dr., on blood | 310 | symptoms, indigestion | 385 |
| Idiopathic Fever | 31 | treatment | 388 |
| Ileitis, ileo-colitis | 408 | tongue, of the | 356 |
| Ileus | 510 | cause and treatment | 357 |
| Infantile Sore Mouth | 349 | tonsils | 363 |
| cause | 350 | cause and treatment | 367 |
| treatment | 351 | Indigestion | 390 |
| Inflammation | 248 | symptoms | 391 |
| causes | 252 | treatment, hygienic | 397 |
| changes of blood in | 271 | medical | 404 |

| | Page. | | Page. |
|----------------------------------------------|--------|-----------------------------------|----------|
| Intermittent Fever | 40 | Obstruction of the bowels— | |
| causes | 57 | treatment | 512 |
| complications | 53 | Esophagitis | 371 |
| diagnosis | 58 | case of | 372 |
| effects of | 55 | symptoms | 371 |
| modifications | 46 | Otitis | 339 |
| periodicity discussed | 50 | cause | 340 |
| post mortem | 55 | treatment | 342 |
| prognosis | 57 | chronic | 343 |
| treatment | 58 | recipes for | 344 |
| radical | 62 | Painter's Colic | 501 |
| recipes for | 82, 83 | cause and symptoms | 502 |
| types of | 40 | prognosis and treatment | 505 |
| stages | 42 | Parasites, origin of | 592 |
| cold | 43 | Parry, Dr., on blood | 313 |
| forming | 42 | Periodicity of intermittent fever | 50 |
| hot | 44 | Peritonitis | 444 |
| sweating | 45 | acute and puerperal | 445 |
| Introductory | 1 | cause and diagnosis | 450 |
| Indian hachy, cause of milk sickness | 582 | periodicity of | 449 |
| Jackson, Dr. | 201 | post mortem | 449 |
| treatment of typhoid fever | 226 | prognosis | 451 |
| Jasmine, yellow | 65 | symptoms | 446 |
| Jordon, Dr. J. H., report on cholera | 560 | treatment | 451 |
| Large Intestines, inflammation of | 422 | chronic | 455 |
| treatment | 430 | symptoms and treatment | 456 |
| Lead colic | 501 | Perlee, on yellow fever | 174, 183 |
| cause, diagnosis, and symptoms | 502 | Pernicious Fever | 149 |
| prognosis and treatment | 505 | Bell, Dr., quotation from on | 160 |
| Ligatures | 321 | old practice | 153 |
| Louis, M. | 211 | prognosis | 152 |
| treatment of typhoid | 232 | symptoms | 150 |
| Lumbricoides | 584 | treatment | 154 |
| treatment | 595 | Wood's views | 154, 157 |
| McCall, Dr. Alexander, on milk sick- ness | 582 | Petechia | 205 |
| Magendie on the blood | 275 | Phrenitis | 321 |
| on blood-letting | 295 | anatomical character and prog- | |
| Malaria, animal and vegetable | 36 | nosis | 327 |
| Malignant Cholera | 531 | causes | 332 |
| Masked Ague | 47, 79 | diagnosis | 326 |
| Methodics | 7 | ligatures | 335 |
| Miasmata, koino and idio | 36, 39 | symptoms | 323 |
| how produced | 37, 88 | treatment | 333 |
| nature of | 36, 39 | chronic | 337 |
| Miasmatic Remittent Fever | 88 | Phrenology | 331 |
| Michigan Fever | 87 | Physic, Dr. | 477 |
| Milk Sickness | 567 | Piles | 467 |
| cause and nature | 572 | cause | 471 |
| diagnosis | 571 | primitive type | 469 |
| note on | 575 | treatment | 472 |
| symptoms and cases | 568 | Pin Worm | 586 |
| treatment | 574 | treatment | 597 |
| Dr. Coleman on | 578 | Piperine in intermittents | 67 |
| Dr. Haynes on | 575 | Priests, early practitioners | 4 |
| Dr. McCall on | 582 | Prolapsus Ani | 488 |
| Morrow's decease | 15 | cause | 489 |
| lecture on cholera | 556 | treatment | 490 |
| treatment of intermittent fever | 64 | Pumpkin Seeds for Tape Worm | 599 |
| Necrosis | 269 | Quartan Type | 40 |
| Nervous Fever | 201 | Quintan do. | 40 |
| Neuralgia, case of | 345 | Quotidian do. | 40 |
| Neutralizing Physic | 390 | Quinsy | 363 |
| Nosology—Cullen's, Good's, Chap- man's | 17 | cause and treatment | 367 |
| Nurse's Sore Mouth | 353 | Recipes—Alterative syrup | 344 |
| treatment | 354 | antidiseptic pills | 522 |
| Obstruction of the bowels | 509 | for bilious colic | 501 |
| symptoms | 510 | Bone's bitters | 83 |
| | | for cholera | 552, 555 |
| | | compound neutralizing physic | 390 |

| | Page. | | Page. |
|------------------------------------|----------|-------------------------------------|----------|
| Recipes— | | Spasmodic colic | 493 |
| emetic powder | 432 | treatment | 494 |
| for lead colic | 505 | Spasmodic cholera | 531 |
| for otitis | 344 | treatment | 532 |
| pod. lep. and taraxacum pill | 84 | Sporadic cholera | 523 |
| pod. lep. sang. and tarax. pill | 124 | diagnosis and treatment | 527 |
| quinine and iron | 116 | symptoms and cause | 525 |
| rochelia virginiana | 443 | Stages of fever | 22 |
| tonic in ague | 83 | Statistical report on cholera | 560 |
| for worms | 596, 597 | Stomach, inflammation of | 373 |
| from Boston Journal | 599 | acute | 374 |
| Rectum, diseases of | 459 | cause | 380 |
| stricture of | 459 | pathology | 378 |
| treatment | 460 | symptoms | 375 |
| organic non-malignant | 462 | treatment | 381 |
| diagnosis | 463 | chronic | 384 |
| treatment | 464 | symptoms | 384 |
| organic malignant of | 465 | diet | 389 |
| treatment | 466 | treatment | 388 |
| fissure of, and description | 479 | Stomatitis | 346 |
| treatment | 480 | causes and treatment | 348 |
| fistula of | 482 | symptoms | 347 |
| treatment | 484 | Stricture of the Rectum | 459 |
| prolapsus of | 488 | spasmodic | 460 |
| description | 489 | treatment | 461 |
| treatment | 490 | organic non-malignant | 462 |
| Remittent Fever | 86 | diagnosis | 463 |
| cause | 97 | treatment | 464 |
| complications | 92 | organic malignant | 465 |
| correct treatment | 113 | treatment | 466 |
| convalescence | 129 | Subsultus and sordes | 207 |
| determination to brain | 124 | Sudamina | 205 |
| diagnosis | 99 | Sun pain | 47, 79 |
| distinguished from intermittent | 89 | treatment | 79 |
| duration | 100 | Sweating stage | 45 |
| febrile stage | 90 | Symptomatic fever | 31 |
| forming stage | 89 | Tape worm | 587 |
| gastro-intestinal irritation | 121 | character and location | 588 |
| hepatic disorder | 123 | treatment | 598 |
| latent period | 99 | Tantini's cases of congestive fever | 160 |
| liability of persons | 89, 98 | Temples of Æsculapius | 4 |
| modifications | 91 | Tenia | 587 |
| nature of | 96 | treatment | 598 |
| post mortem | 102 | Tennitis aurium | 324 |
| prognosis | 100 | Terminations of inflammation | 256 |
| remission | 91 | Tertian type | 40 |
| treatment | 102 | Thread worm | 587 |
| where prevalent | 87, 88 | Thrush | 349 |
| Wood's treatment | 103 | causes and treatment | 351 |
| Remittent Congestive Fever | 130 | Tissues modify inflammation | 266 |
| Remittent Pernicious | 149 | Tobacco, injections of | 514 |
| continued | 161 | Tongue, inflammation of | 356 |
| Retention of urine in typhoid | 208 | cause and treatment | 357 |
| Rhus Toxicodendron, cause of milk | | Tonsillitis | 363 |
| sickness | 573 | cause and treatment | 367 |
| Rhus Radicans, cause of milk sick- | | character of | 364 |
| ness | 582 | prognosis | 366 |
| Sick Stomach | 567 | chronic | 371 |
| causes and nature of | 572 | Tweedie, Dr., on inflammation | 282 |
| note on | 575 | on blood | 311 |
| symptoms and case of | 568 | Types of fever | 40 |
| treatment | 574 | Typhoid Fever | 200 |
| Smith, Dr. Nathan | 219 | anatomical character | 210 |
| treatment of typhoid | 235 | cause | 217 |
| Solidists | 32 | contagion and infection | 218, 220 |
| Sore mouth | 353 | convalescence | 247 |
| treatment | 354 | diagnosis | 223 |
| Sore throat, character of | 358 | nature of | 222 |
| chronic | 362 | prognosis | 225 |

| | Page. | | Page. |
|----------------------------------|----------|-------------------------------|----------|
| Typhoid Fever— | | Worms— | |
| symptoms | 203 | varieties of | 584 |
| treatment | 238 | first, ascaris lumbricoides | 584 |
| by Chomel | 228 | second, vermicularis | 586 |
| by Jackson | 226 | third, tricocephalus dispar | 587 |
| by Louis | 232 | tænia solum | 587 |
| by N. Smith | 235 | tænia lata | 588 |
| Typhus Fever | 130 | origin of | 591 |
| description, by Dr. Armstrong | 131 | by Vogel | 592 |
| degeneration | 139 | treatment | 595 |
| malarial origin | 137 | recipes for | 596, 597 |
| not contagious | 136 | Yellow Fever | 163 |
| not typhoid | 135 | anatomical character | 178 |
| symptoms | 137 | black vomit in | 177 |
| treatment | 140 | cause | 181 |
| Typhus Icterodes | 163 | by Dr. Perlee | 183 |
| Ulcerative inflammation of mouth | 352 | by Dr. Dixon | 187 |
| symptoms | 353 | contagion | 190 |
| treatment | 353 | diagnosis | 191 |
| Ware, Dr. | 201 | description of, at Charleston | 169 |
| Willis on periodicity | 51 | at Natches | 174 |
| Wind colic | 493 | epidemic and endemic | 164 |
| treatment | 494 | prognosis | 192 |
| Wood on intermittent fever | 70, 75 | symptoms | 165 |
| on congestive fever | 154, 157 | treatment | 193 |
| on remittent fever | 103 | Yellow Jessamine | 65 |
| on yellow fever | 165 | | |

DR. MORROW'S POSTHUMOUS WRITINGS.

| | Page. | | Page. |
|--------------------------|-------|--------------------------------|-------|
| Acute Bronchitis | 742 | Bronchitis— | |
| symptoms of | 743 | chronic, symptoms | 689 |
| cause of | 744 | prognosis | 690 |
| treatment | 745 | dissection | 690 |
| Acute Hepatitis | 756 | treatment | 691 |
| diagnosis | 757 | Chronic Bronchitis | 689 |
| cause and treatment | 759 | prognosis | 690 |
| Acute Gastritis | 718 | treatment | 691 |
| symptoms | 718 | Chronic Hepatitis | 762 |
| diagnosis | 720 | cause | 763 |
| treatment | 722 | treatment | 765 |
| Acute Peritonitis | 685 | Chronic Inflammation of Bowels | 738 |
| cause | 686 | treatment | 739 |
| treatment | 686 | Colitis | 748 |
| Arachnitis | 656 | treatment | 753 |
| symptoms | 657 | Continued Fever | 627 |
| diagnosis | 658 | sthenic and asthenic | 627 |
| treatment | 659 | cause | 629 |
| Bilious Pneumonia | 711 | symptoms | 631 |
| symptoms | 712 | treatment | 632 |
| treatment | 713 | Croup | 675 |
| Bladder, inflammation of | 773 | pseudo membranous | 677 |
| treatment | 774 | treatment | 680 |
| Bowels, inflammation of | 732 | Cynanche Laryngea | 693 |
| symptoms | 734 | symptoms | 694 |
| treatment | 734 | cause | 695 |
| chronic | 738 | treatment | 695 |
| treatment | 739 | Cynanche Tonsillaris | 669 |
| Brain, inflammation of | 651 | symptoms | 670 |
| symptoms | 651 | treatment | 671 |
| treatment | 652 | Cynanche Trachealis | 675 |
| Bronchitis, acute | 742 | symptoms | 676 |
| symptoms | 743 | cause | 678 |
| cause | 744 | prognosis | 679 |
| treatment | 745 | treatment | 680 |

| | Page. | | Page. |
|------------------------|-------|------------------------------|-------|
| Cystitis | 773 | Inflammation, of the bladder | 773 |
| treatment | 774 | treatment | 774 |
| Dysentery | 748 | brain, of the | 651 |
| symptoms | 749 | symptoms | 651 |
| typhus | 751 | pathology | 652 |
| morbid appearances | 752 | treatment | 652 |
| cause | 752 | bronchia, of the | 742 |
| treatment | 753 | symptoms | 744 |
| Ear, inflammation of | 662 | treatment | 745 |
| treatment | 663 | ear, of the | 662 |
| Enteritis, symptoms of | 732 | symptoms | 663 |
| diagnosis | 733 | treatment | 663 |
| cause and treatment | 734 | large intestines, of the | 748 |
| chronic, symptoms of | 738 | symptoms | 749 |
| cause and treatment | 739 | cause | 752 |
| Erethismus Mercurialis | 776 | treatment | 753 |
| diagnosis | 778 | larynx, of the | 693 |
| treatment | 778 | symptoms | 694 |
| Fever, continued | 627 | cause | 695 |
| cause | 629 | treatment | 695 |
| symptoms | 631 | lungs, of the | 704 |
| treatment | 633 | symptoms | 705 |
| intermitting | 603 | diagnosis | 706 |
| symptoms of | 604 | cause | 707 |
| inflammatory | 605 | treatment | 707 |
| malignant | 606 | intestines, of the | 732 |
| treatment | 608 | diagnosis | 733 |
| remitting | 613 | cause | 734 |
| malignant | 614 | treatment | 734 |
| gastric | 617 | kidneys, of the | 769 |
| hepatic | 617 | cause | 770 |
| cause | 618 | treatment | 771 |
| treatment | 619 | parotid gland, of the | 682 |
| modifications | 624 | treatment | 683 |
| mercurial | 776 | peritoneum, of the | 685 |
| treatment | 778 | cause | 686 |
| typhus | 635 | treatment | 686 |
| symptoms | 636 | pleura, of the | 697 |
| cause | 638 | treatment | 699 |
| prognosis | 641 | stomach, of the | 718 |
| treatment | 641 | symptoms | 719 |
| yellow | 646 | diagnosis | 720 |
| symptoms | 647 | cause | 721 |
| contagion | 648 | treatment | 722 |
| treatment | 648 | chronic | 726 |
| Gastritis, acute | 718 | symptoms | 727 |
| symptoms | 718 | cause | 728 |
| diagnosis | 720 | treatment | 729 |
| cause | 721 | tongue, of the | 665 |
| treatment | 722 | treatment | 667 |
| chronic | 726 | tonsils of the | 669 |
| symptoms | 726 | symptoms | 670 |
| cause | 728 | treatment | 671 |
| diagnosis | 728 | trachea, of the | 675 |
| treatment | 729 | treatment | 680 |
| Glossitis | 665 | Intestines, inflammation of | 732 |
| symptoms | 666 | treatment | 734 |
| treatment | 667 | chronic | 738 |
| Hepatitis, acute | 756 | treatment | 739 |
| symptoms | 757 | Intermitting Fever | 603 |
| cause | 759 | symptoms | 604 |
| treatment | 759 | inflammatory | 605 |
| chronic | 762 | congestive | 605 |
| cause | 763 | malignant | 606 |
| treatment | 765 | treatment | 608 |
| Hydrocephalus | 656 | Kidneys, inflammation of | 769 |
| symptoms | 657 | cause | 770 |
| diagnosis | 658 | treatment | 771 |
| treatment | 659 | Larynx, inflammation of | 693 |

| | Page. | | Page. |
|--------------------------|-------|--------------------------|-------|
| Larynx, inflammation of— | | Pleuritis | 697 |
| symptoms | 694 | symptoms | 697 |
| cause | 695 | diagnosis | 699 |
| treatment | 695 | treatment | 699 |
| Liver, inflammation of | 656 | chronic | 698 |
| symptoms | 756 | treatment | 702 |
| treatment | 759 | Quinsy | 669 |
| Lungs, inflammation of | 704 | symptoms | 670 |
| symptoms | 705 | treatment | 671 |
| diagnosis | 706 | Remitting Fever | 613 |
| cause | 707 | malignant | 614 |
| treatment | 707 | gastric | 617 |
| Meningitis | 656 | hepatic | 617 |
| symptoms | 657 | cause | 618 |
| diagnosis | 658 | treatment | 618 |
| treatment | 659 | modifications | 624 |
| Mumps | 682 | Stomach, inflammation of | 718 |
| treatment | 683 | symptoms | 719 |
| Mercurial Fever | 776 | diagnosis | 720 |
| symptoms | 778 | cause | 721 |
| treatment | 779 | treatment | 722 |
| Nephritis | 769 | chronic | 726 |
| symptoms | 769 | symptoms | 727 |
| cause | 770 | cause | 728 |
| treatment | 771 | treatment | 729 |
| Otitis | 662 | Tongue, inflammation of | 665 |
| symptoms | 663 | symptoms | 666 |
| treatment | 663 | treatment | 667 |
| Parotitis | 682 | Tonsillitis | 669 |
| Pneumonia Biliosa | 711 | symptoms | 670 |
| symptoms | 711 | treatment | 671 |
| diagnosis | 712 | Trachialis | 675 |
| treatment | 713 | symptoms | 676 |
| Peripneumonia | 704 | cause | 678 |
| symptoms | 705 | treatment | 680 |
| diagnosis | 706 | Typhus Fever | 635 |
| cause | 707 | cause | 638 |
| treatment | 707 | prognosis | 641 |
| Peripneumonia Notha | 742 | treatment | 641 |
| typhoides | 715 | Typhus Icterodes | 646 |
| treatment | 716 | symptoms | 647 |
| Peritonitis, acute | 685 | contagion | 648 |
| cause | 686 | treatment | 648 |
| prognosis | 686 | Typhoid Pneumonia | 715 |
| treatment | 686 | treatment | 716 |
| Phrenitis | 651 | Yellow Fever | 646 |
| symptoms | 651 | symptoms | 647 |
| pathology | 652 | contagion | 648 |
| treatment | 652 | treatment | 648 |

E R R A T A.

Page 2, line 6 from top, read "as the hireling," for "a' the hireling."

Page 5, line 14 from bottom, read "Heraclitus," for "Heraclite."

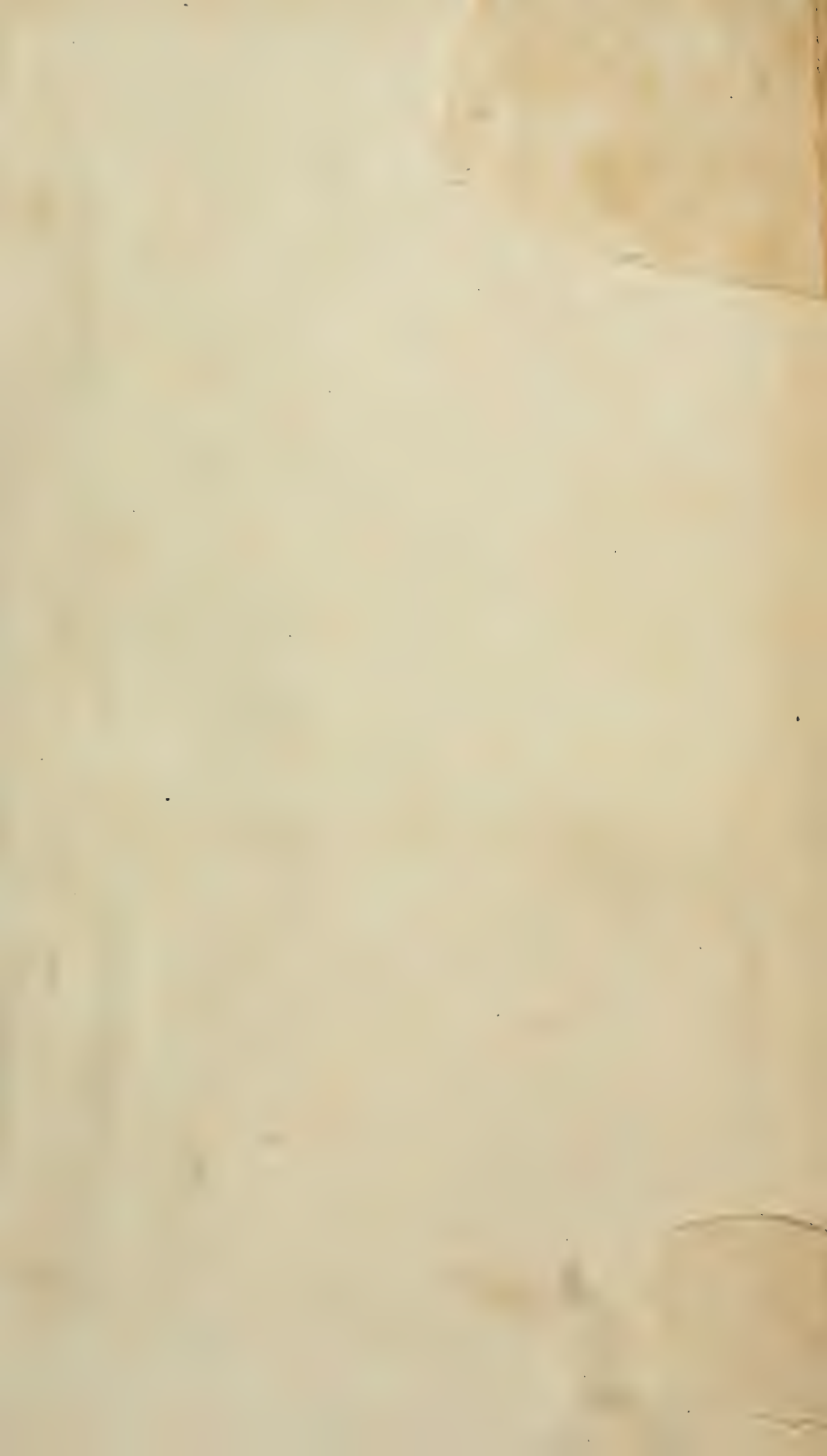
Page 149, heading, read "Pernicious Fever," for "Bilious Fever."

Page 352, line 3 from top, read "oris," for "orris."

Page 284, line 7 from top, read "lumbrici," for "lumbrica."

Page 534, line 7 from bottom, read "centres of Europe," for "centres of Asia."

References to "Wood's Practice," sometimes First, and sometimes Second Edition.



Larynx, inflammation of-
 symptoms
 cause
 treatment+
Liver, in^c

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Page
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